TECHNOLOGY DEPT.

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DETROIT

'It's Important to Know In Time'

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The Newspaper of the Industry

Air Conditioning & REFRIGERATION NEWS

AN INTERNATIONAL INSTITUTION ★ SUBSCRIBERS ALL OVER THE WORLD ★

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'Written to be Read on Arrival'

Issued Every Wednesday at Detroit, Michigan

JAN. 14, 1942

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Established 1926.

Norge, Frigidaire Lines Ready

12-Way Interior In '42 Standard Frigidaire Line

DAYTON, Ohio—New 1942 Standard model Frigidaire refrigerators in 7 and 9-cu. ft. sizes, available in three groups to meet customer convenience feature demands, have been announced by E. G. Biechler, general manager of Frigidaire.

Emphasizing that America's war needs naturally have first call upon Frigidaire resources, Mr. Biechler declared that "at the same time, we are going to do everything in our power to provide the Frigidaire dealer organization with all possible new products of highest quality, and to help keep products in customers' homes operating efficiently.

"By so doing, we, together with our dealer organization, will be serving in another important way—by helping to protect the nation's food and health."

In outlining convenience features of the new Standard models, P. M. Bratten, Frigidaire general sales manager, pointed out that food

(Concluded on Page 2, Column 4)

'Night-Watch' Is Feature of Top Norge Models

DETROIT—New beauty achieved through streamline design of both exteriors and interiors, and a host of convenience features distinguish the 1942 Rollator refrigerator line now being introduced by Norge.

Seven models, two 6-foot, three 7-foot, including an all-porcelain model, and two 9-foot sizes are designed to offer a range in prices and features attractive to all classes of prospects while holding the dealer's stock to reasonable minimums, a point likely to be increasingly important this year.

Outstanding among Norge features is the Night-Watch fully automatic defroster, introduced last year, and said to have proven not only a potent "sell-up" aid but a drawing card for the entire line as well. The Night-Watch electric clock, controlling the action, automatically defrosts the freezer unit for three hours each night, between midnight and 3 a.m.

An integral part of Norge design, the Night-Watch defrosting system is expected to take a particularly

(Concluded on Page 27, Column 2)

Tin Shortage Makes Refrigeration More Essential Than Ever

THE JAPS may have hurt us worse by cutting off our tin supplies than by checking the flow of natural rubber. Right now it's the shortage of rubber which impresses everyone; by the end of the year, the tin shortage may make the loss of our tires and automobiles seem relatively minor.

We have been using some 110,000 tons of tin annually, mostly for tin cans in which to preserve foods. At the present moment we have about 115,000 tons on hand. It's unlikely that we'll get any more from the Far East (in appreciable quantities) for many years. Even if we are able to drive Japan out of Malaya some day, they will have destroyed the smelters certainly before we can get them back.

By April we will have built tin smelting capacity in this country of 1,500 tons a month—using South American ores, if we can get them here. This will have to do us. It will take care of our military needs—babbitts, bearings, solders—but it won't take care of our food supply.

Packaging in glass will be increased, but that won't do the whole job. Glass manufacturers are working at capacity now. New machinery may be impossible for them to obtain. Shortage of essential soda ash is also feared. Cans made of synthetic lacquers on black plate will help some—if black plate is obtainable. Some subsidized salvage plants may be built, to collect minute quantities of tin and some steel—providing collection problems can be worked out.

It all adds up to an enormous headache for the food processing, packaging, and distribution people—and for We, the People, who have to go on eating.

One clear answer is indicated: REFRIGERATION! Expansion of quick-frozen foods processing and distribution is feasible, and would help enormously. So will locker storage. So will many more commercial refrigeration applications.

Japan's bloody march through the Malay archipelago has made refrigeration more important than ever to America. And the industry will rise to the occasion.

Heating Show Is Off; Convention Plans Are Kept

ASHVE Will Convene In Philadelphia Hotel Jan. 25-29

PHILADELPHIA — The Seventh International Heating & Ventilating Exposition, scheduled to be held in the Commercial Museum here during the week of Jan. 26, has been cancelled by a vote of exhibitors, according to a notice issued last week by the exposition management. However the forty-eighth annual meeting of American Society of Heating & Ventilating Engineers will be held in the Bellevue-Stratford hotel Jan. 25 to 29 as scheduled, reports Secretary A. V. Hutchinson.

Several topics of interest to air conditioning engineers are included in the technical program prepared for the meeting. At the second technical session, set for 8 p.m. Jan. 26, "Comfort With Summer Air Conditioning" will be reported on by the technical advisory committee on sensations of comfort, of which Thomas Chester is chairman. "Use of Cold Accumulators in the Air Conditioning Field" will be outlined by R. W. Evans and C. J. Otterholm, and "The Effect of Attic Fan Operation on the Cooling of a Structure" by W. A. Hinton and Albert F. Poor.

At the fourth technical session, scheduled for 2 p.m. Jan. 27, "Corrosion Tests in a Water Recirculating Air Conditioning System" will be reported on by W. Z. Friend; "Entrainment and Jet-Pump Action of

(Concluded on Page 36, Column 1)

Henderson, Bogardus Foresee More Cuts, But No 'Prohibition'

CHICAGO—"I don't think, at present, that refrigerators and other appliances will have to be put on the same basis as the automobile industry," Dr. James F. Bogardus, chief of the consumers durable goods division of the Office of Price Administration, declared last week in an address at the annual luncheon meeting of the National Housefurnishings Buyers Club at the Palmer House here.

"However, production will certainly have to be cut again," Dr. Bogardus said. "Very likely, all production will have to be concentrated in a few plants, so that the others can be turned over to war production, as they have done in England."

In its efforts to stave off the dangers of inflation, OPA is definitely opposed to the practice of selling goods on a "price prevailing at time of shipment" basis, and will take action against any manufacturers found to be doing business on that basis, Dr. Bogardus said.

At present, he continued, no legal machinery exists for forcing manufacturers to comply with OPA edicts, and the only weapon this office has been able to wield is that of publicity. "However," he added, "that kind of publicity, at a time like this, is a real and effective method."

The necessary legal machinery, it is expected, will be established when the pending price control legislation is passed.

"We don't want to have to use

(Concluded on Page 35, Column 3)

WASHINGTON, D. C. — While further sharp curtailments in the production of refrigerators, washing machines, and similar consumer durable goods is very probable, no complete suspension of such manufacturing is contemplated, Leon Henderson, head of the Office of Civilian Supply, was quoted as saying last week.

When the drastic "freezing" order was invoked on new automobile sales with subsequent talk of new car production being halted entirely within a short time, reports were rife that similar action might be taken on major household appliances.

In disposing of the reports Mr. Henderson said that his office is endeavoring to see that minimum civilian needs are met, and thus far has seen no reason for suspending production of the major household items entirely, although he admitted that later developments might alter this view.

While the Civilian Supply chief declined to speculate upon the extent to which present output quotas may be slashed by the government, he declared that the government's "Victory Program" was certain to make inroads on the supplies of vital materials needed for civilian production.

"This office has a dual respon-

(Concluded on Page 35, Column 3)

Instalment Sellers Must Keep Details Of All Such Sales

CHICAGO — Electrical appliance and furniture dealers operating under instalment selling Regulation W must be prepared in the future to submit a detailed breakdown of sales figures whenever government needs warrant examination of their records, Paul C. Hodge, assistant counsel of the Federal Reserve Bank of Chicago, told members of National Retail Furniture Association at a luncheon meeting during the January market here.

Need for the government to examine the books and records of merchants, Mr. Hodge declared, was made clear by the experiences of enforcement agencies which were forced to rely solely on competitors' complaints. This, he pointed out, was an unsatisfactory method of enforcement.

"It will be necessary in the future," he declared, "to record and report

(Concluded on Page 36, Column 2)

'The Show In Print'

Both editorially and in its advertising columns, this issue of the NEWS attempts to bring customers and suppliers (in the commercial refrigeration, air conditioning, and parts fields) closer together.

When wartime exigencies forced the cancellation of the Fourth All-Industry Refrigeration and Air Conditioning Exposition, a considerable confusion existed. Customers had been looking forward to meeting suppliers at the Exposition so as to get many questions answered. To give suppliers a place for answering these questions as best they could, the NEWS offered its columns. The response was gratifying.

Although nobody today can answer a question definitely as to supplies, they can at least tell what they know now, and offer good advice based on early experience in our revolutionized wartime economy.

In the reasonably near future Rema, Nrsja, and Rses will meet conjointly at a General Industry Meeting, at which time, it is hoped, the industry will have more specific information on many of its new problems. All subscribers are advised now to make plans for attending that meeting. The date will be announced in an early issue of the NEWS.

Buyers Jam Mart Asking Information Lines Are Shorter

CHICAGO—A dramatic preview of furniture and appliance lines to be offered to the public in its first year of war unfolded at the Merchandise Mart, the Palmer House, and the American Furniture Mart here last week as the annual winter market opened to buyers gathered from every part of the country. Jammed hotels and sub-zero temperatures greeted an estimated 14,000 buyers faced with the business of providing customers in every city with the necessities and a few of the luxuries.

Spurred by the recent freezing of automobile production, of which many buyers feared a parallel in the refrigeration industry, a greater number of distributors and major appliance buyers came to the show this year, in sharp contrast to the early 15% drop in general attendance at the market.

Twelve makes of refrigerators were represented in the Mart displays, in most cases offering lines comprised of fewer, larger, and attractively restyled models for 1942. While few major changes appeared in the basic design, cabinet exteriors

(Concluded on Page 30, Column 1)

Chrome Restriction Hits Valves, Controls

DETROIT—Order restricting the use of heat and corrosion resistant chrome steel, which went into effect last week, means in effect that there will be no delivery of expansion valves or refrigeration controls in which such material is a part, unless the order is accompanied by an A-10 or higher priority.

Supplementary Order M-21-D provides that no person shall consume, use, fabricate, or deliver corrosion or heat resistant alloy iron or steel containing more than 4% chromium after 10 days from the issuance of the order, except on ratings of A-10 or higher.

The order makes mandatory a report by Jan. 15 of all chrome iron or steel subject to the order on hand.

The restriction does not apply to fully fabricated articles in which the designated material is used, but it does apply to raw steel stock in the form received, or cut to size for further processing or fabrication.

Gov't Orders Excluded From Industry Quotas

WASHINGTON, D. C.—Any household mechanical refrigerators produced for U. S. government agencies, allied governments, lend-lease requirements, and for defense housing projects where contracts involved were obtained as the result of competitive bidding, are excluded from existing production quotas set up by the OPM for the mechanical refrigeration industry, it was announced last week by Donald M. Nelson, Director of Priorities.

3,632,000 Household Units Sold By Nov.

DETROIT—World shipments of household electric refrigerators during November totaled approximately 100,000 units, to make the total for the first 11 months of 1941 approximately 3,632,000 units, according to estimates by AIR CONDITIONING & REFRIGERATION NEWS.

World shipments by 10 manufacturers reporting to National Electrical Manufacturers Association reach-

(Concluded on Page 36, Column 1)

Price Ceiling Set on Stoves By Henderson

WASHINGTON, D. C.—A new price schedule setting top prices for domestic cooking and heating stoves at levels about 2% above the mid-October prices was issued last week by Price Administrator Leon Henderson. The order, which was effective Jan. 5, supplants an informal agreement the government has had with manufacturers since early November.

Top prices that may be charged for "regular line" stoves, according to the new schedule, must not exceed 112% of the net price quoted by the

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Price Ceiling on Stoves Aims To Prevent Inflationary Boosts Due To Curtailment

(Concluded from Page 1, Column 5)
manufacturer during the period from Jan. 15 to June 1, 1941. The term "net price quoted," it is explained, means the price shown in the manufacturer's price list or catalog, less all discounts except for cash.

With regard to "private brand" stoves, the maximum price must not exceed the lowest price charged by the manufacturers during the same period.

Need for the new schedule, it was explained, arose from the recent OPM limitation order, which will have the effect of curtailing substantially the production of new stoves during the first four months of 1942. With further restriction of supply threatened, the OPA chief asserted, it becomes necessary to issue a price schedule at this time to prevent inflationary price increases.

The new schedule included suggestions and recommendations made by members of the OPA cooking and heating stove industry advisory panel, which met here Dec. 27 to discuss the proposed price action. While the present action is directed only against stove prices at the manufacturer's level, Mr. Henderson added that his office is prepared to move promptly to prevent any further advances by wholesalers, jobbers, and retailers.

To prevent nullification of the ceiling order by changes in construction that would reduce quality, the schedule imposes emergency restrictions on specification changes until Next Dec. 31. It also forbids the sale of any stoves differing in specifications from those offered for sale or delivered from Jan. 15 to June 1, 1941, although producers may offer other models which they made or had in process of manufacture during that period of 1941.

OPA must specifically approve the proposed price of any such models before the stoves can be offered for sale, and OPA must also approve any stoves marketed after June 1, 1941, that went beyond the restrictions imposed by the schedule on changes in specifications, Mr. Henderson said. Some leeway is allowed with respect to changes that do not affect quality, such as elimination or addition of decorative strips, mouldings, surface paneling, and hardware.

In the event materials previously used become unavailable, prohibitive in cost, or so restricted as to make further changes necessary, or necessitate the introduction of new models, a manufacturer may apply to OPA for authority to take such action. All stoves made for and sold to the Army, Navy, or other federal authority are exempt from the restriction on design change, as also are sales to lease-lend nations.

Production practices of all manufacturers will be watched carefully, OPA warned, in case tendencies develop that it does not approve. Use of cover tops on domestic stoves has been eliminated by OPA order, and hence the maximum price of any stove from which a cover has been eliminated must be adjusted to reflect any saving in cost. Such adjustments, with supporting cost data, must be filed with OPA.

Won't Affect Prices, Store Buyers Say

CHICAGO—While the OPA's order establishing a price ceiling for stoves gave rise to much discussion among buyers and sellers at the Furniture Mart here, the consensus of these men was that the move would have little effect on stove prices at the current market or in the immediate future.

The ruling fixed manufacturers' top prices at 112%, with the lowest price charged by the manufacturer between Jan. 15 and June 1, 1941 being considered as 100%.

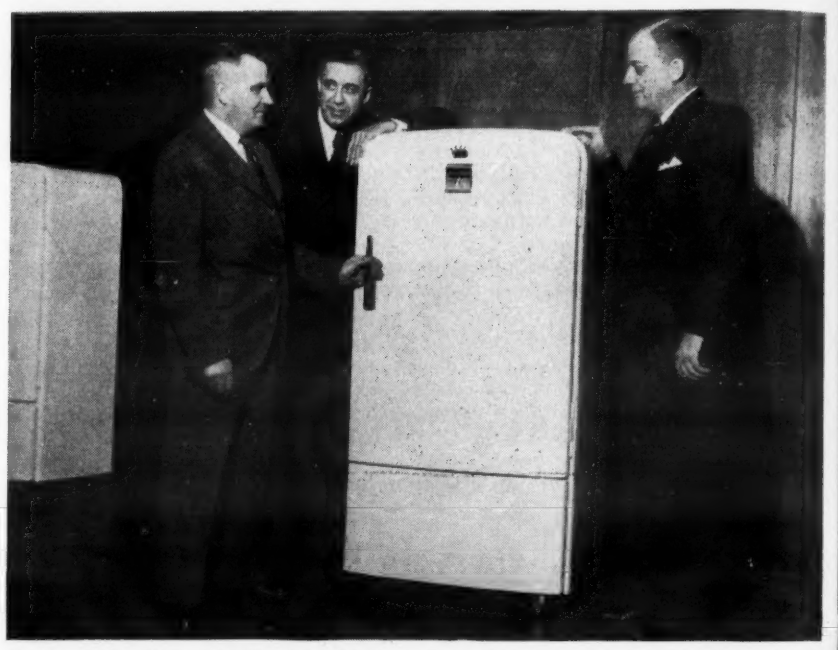
Stove company officials and representatives pointed out, however, that price increases for the industry as a whole have averaged around 12%, leaving prices substantially where they are.

Some manufacturers, it was conceded, may be forced to cut their prices somewhat, because they had delayed boosting prices in the spring, but generally it was felt that many stove concerns would gain a price increase, where justified, of from 3 to 5%.

Question of raw materials was said to be the most disturbing problem facing stove manufacturers at the present time, although the factor of increased labor costs is important. The cost-and-price picture for the future is not too encouraging, because of the labor and materials problems.

'Open & Shut' Case For Frigidaire

F. L. Meacham, manager of Frigidaire's household engineering division, in demonstrating the new 1942 M-7 to L. A. Clark, manager of advertising and sales planning, places special emphasis on the Meter-Miser's economy and reliability, both of which factors are highly essential under today's war conditions.



S. M. Schweller, Frigidaire chief engineer, left, L. A. Clark, advertising manager, and P. M. Bratten, general sales manager, discuss new sales features found in the new standard model M-7 Frigidaire for 1942.

* * *

Frigidaire Stresses Economy In Line

(Concluded from Page 1, Column 1)
storage capacities are larger than in comparable 1941 models, which were of 6 and 8-foot size. Other new features, Mr. Bratten said, include convertible interiors, to accommodate foods of different shapes and sizes, and a new combination Meat Tender and cold storage tray.

The new Standard model S7-42 retains all the important features of the lowest-priced 1941 Frigidaire model, the LS-6, but has a full 7-cu. ft. food compartment. Cabinet chassis itself is also larger.

The new M7-42 is available with extra utility features, including a new drawer type Meat Tender, considerably deeper than those of former years, with a new combination cold storage and defroster tray which makes it unnecessary to remove meats from the Meat Tender when defrosting. In addition, this model has a sliding glass-topped hydrator and several appearance advantages over the S-7. It is available with an exterior finish of either Dulux or porcelain.

More completely equipped standard type refrigerator is the D7-42, one feature of which is a 12-way convertible interior which permits a choice of 12 different interior arrangements of the shelves, to suit storage needs at any season of the year. In addition to all the convenience features of the M-7, this model also has a utility storage bin for keeping foods that do not require refrigeration.

The D-7 is also available with an exterior finish of porcelain and with an extra hydrator which can be operated as a sliding drawer when it is placed either beside or above the other hydrator.

In addition, to meet a demand for a larger capacity standard refrigerator of this type, there is a 9.1-cu. ft. model finished in Dulux. This model has the same equipment as the D-7, except that the frozen storage compartment, Meat Tender, hydrator, and utility storage bin are all larger—there is an extra hydrator which slides as a drawer in either of two positions, and there are two additional ice trays.

Other features of the new 1942 models include streamlined door construction, and concealed door trim screws, improved corner mounting of door seal, eye-level location of the cold control, and new rubber cushion shelf mounting.

"Even though the 1942 products incorporate many improvements over previous models, no major tool changes were necessary," declared S. M. Schweller, chief engineer. "Any tool changes required were made early in 1941. All basic features such as the Meter Miser mechanism, one-piece cabinet, F-114 refrigerant, and all-porcelain interior, including the inside door panel, have been retained, and at present every model has two Quickube ice trays.

"From the standpoint of materials used," said Mr. Schweller, "the new products maintain the same high quality as formerly. Wherever it was necessary to change materials, the quality of the alternative materials is as good as, or better than, the materials replaced."

REMEMBER PEARL HARBOR

IT'S WAR NOW..

Yesterday's Defense Program has become today's Victory Program. The need for greater production is at once apparent. The demand for vital metals—and copper is at the top of the list—increases proportionately.

While the activities of the refrigeration industry have been heavily curtailed, some production will be continued . . . if materials can be made available. We, at Wolverine Tube, feel that it is our responsibility to make every effort consistent with the Victory Program to furnish tube for refrigeration purposes.

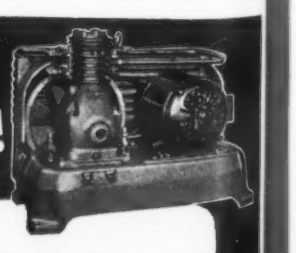
Obviously, Uncle Sam's needs must be given first consideration. Some percentage of our production, however, can undoubtedly be used for refrigeration. To this extent your requirements and inquiries will be handled to the limit of our ability within the restrictions of the existing regulations.

Refrigeration production is important to this country. We're going to do our share to keep it rolling.

WOLVERINE TUBE CO.
Seamless
COPPER · BRASS · ALUMINUM
DETROIT

REMEMBER PEARL HARBOR

EASY TO SELL!



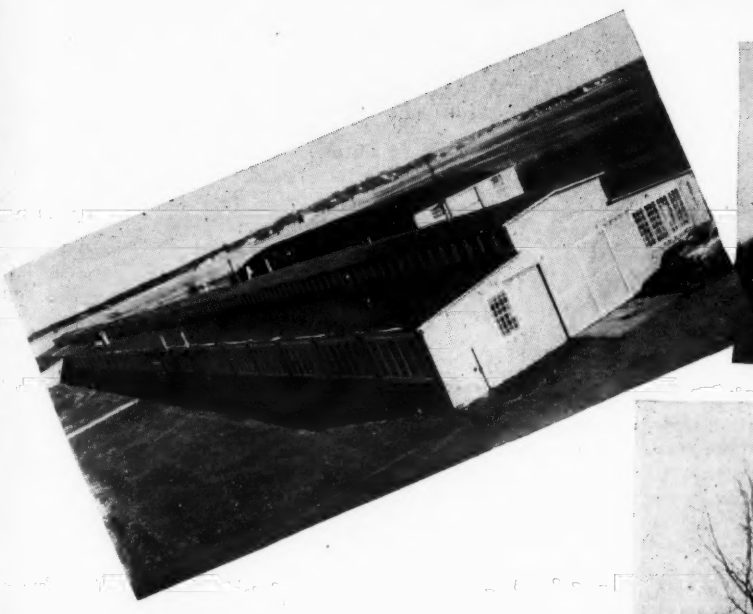
More than 20 years of high reputability...in every kind of refrigeration service...has established the name "Lipman" as a BUY word that breaks down sales resistance. Make this reputation your sales asset . . . for greater profit and better customer satisfaction.

Lipman

GENERAL REFRIGERATION DIVISION
Yates-American Machine Co.
Dept. AC-1 Beloit, Wisconsin

IF IT CAN BE MADE IN '42

PEERLESS WILL MAKE IT!



20 ACRES OF REFRIGERATION FACTORY

PRODUCTS NOW AVAILABLE

in standard design or special "war" design.

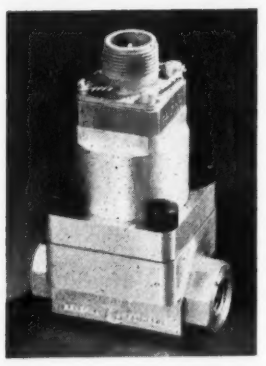
FIN COILS	CAPACITY BOOSTERS
FLASH COOLERS	WATER SAVERS
UNIT COOLERS	THERMAL EXPANSION VALVES
DOME COOLERS	TWO TEMPERATURE VALVES
ICE CUBE MAKERS	CANNON COOLERS

PEERLESS OF AMERICA, INC.

Factory: Marion, Indiana

Chicago Office: 333 N. Michigan Ave.

New Electric Valves Designed For Use On Moving Vehicles



GLENDALE, Calif.—A new series of electric valves designated as Series PV, specifically designed for positive valve operation on moving equipment and vibrating machines, has been introduced by General Controls Co.

Applications claimed for the valve are numerous and include airplanes, buses, trucks, tanks, tractors, railroad cars, ships, boats, machine tools, etc.

Series PV electric valves are completely new in design and should not be confused with modified stationary valves or alternating current type valves. The main consideration governing their design was to provide positive operation regardless of vibration, movement, or substantial increases in acceleration (as expressed by factor "g").

Valves are generally of the two-wire current failure type, designed for compactness and low weight. They will handle all types of liquids, gases, and vapors, including refrigerants, greases, gasoline, alcohol, anti-icing fluids, etc., under pressures from a fraction of a pound to 1,500 pounds or more. They will operate in any position, and have packless, drip-proof design.

Lowe Again Directs Westchester Dealers

NEW YORK CITY—Edward Lowe was re-elected president of the Westchester Gas & Electrical Dealers' Association for the third successive year at the recent annual meeting of the organization, which comprises about 60 retail appliance dealerships in the Westchester area.

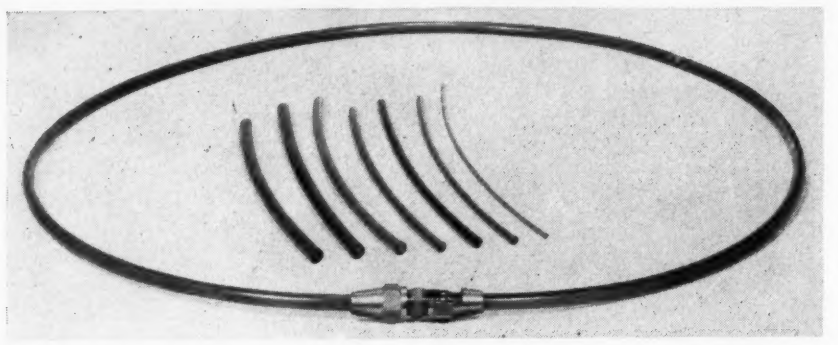
Other officers for 1942 are: I. Donen, first vice president; Curt Weissheimer, second vice president; Abraham Wollins, third vice president; Raymond L. Klein, secretary; and Lewis Kam, treasurer.

Appliance Store Opens As Hotel Annex

FALL RIVER MILLS, Calif.—Charles Boswell has opened the Boswell Appliance Store, featuring a full line of major appliances, in the Boswell hotel, located near important Navy warehouses, which he also operates.

Chicago Firm Fabricating Plastic Tubing

Metal In the Fittings Only



Above are samples of 'Saran' plastic tubing in various sizes as fabricated by a Chicago firm. Fitting is used to join the ends. The plastic is produced by the Dow Chemical Co.

'Saran' Tubing Has Standard Fittings, Some Limitations

CHICAGO—Saran—a new thermoplastic whose characteristics enable it to replace metals in certain applications—is now being fabricated here in both tubing and sheet form by Western Felt Works, Acadia Synthetic Products Division, under license by The Dow Chemical Co., Saran's producer.

Saran tubing will be fabricated in a wide range of sizes and thicknesses, ranging from ⅛ to ⅜ inch O.D. Its characteristics enable it to replace metal tubing in many applications, except where quite high temperatures and very high pressures are encountered.

Saran tubing can be joined by standard flare-type or compression fittings. Joined with standard tubing couplings, Saran tubing withstood a pressure of 1,500 pounds per square inch without rupture or leakage.

Principal characteristics of this new plastic are its toughness and its high resistance to moisture, brine, solvents, acids, and alkalies. Under fatigue tests, Saran tubing recently was flexed 2,500,000 times through a 15° arc, 1,750 times per minute, without failure.

In addition to tubing, Acadia Synthetic Products will fabricate Saran in sheets, in thicknesses from 1/32 to ½ inch, and in compression molded parts.

Western Felt Works are manufacturers and cutters of wool, hair, and jute felts; and, in the Acadia Division, are fabricators of a wide line of molded, extruded, sheet, and other synthetic rubber products.

Goodrich Lists Uses of Its Synthetic

AKRON, Ohio—Among the uses to which Ameripol, the synthetic rubber developed in its own laboratories has already been put, The B. F. Goodrich Co., lists the following:

Gaskets for windshield wipers, gasoline cans, gasoline and oil pumps, pistons, journal boxes of mine cars, refrigerators, greasing equipment, transformers, fuel oil gauges, pneumatic tools, carburetors, airplane engine parts, fire-fighting equipment, shock absorbers, auto steering columns, auto dust seals, and for Diesel engines.

Rigid Restrictions Announced on Tin; Controls Excepted

WASHINGTON, D. C.—Sweeping, rigid restrictions on the use of tin, leading eventually to the elimination of the use of this material in certain articles, were announced last week by the Director of Priorities.

Twenty-nine items for which tin cannot be used after March 31, 1942, are listed in Conservation Order M-43-a. Consumption of tin in the items specified between Jan. 1 and March 31, 1942 is limited to 50% of the amount used in the corresponding period of 1940.

The list of items in which the use of tin will be prohibited after March includes beverage dispensing units and parts thereof including tin pipe, refrigerator trays, building supplies (except temperature controls and items appearing on the Defense Housing critical list), household furnishings, and automobile body solder.

All manufacturers using tin, except for containers and for the uses listed in the Order, must limit their consumption in any calendar quarter, starting Jan. 1, to 50% of the amount used in the corresponding quarter of 1940.

Exceptions to the order, to the extent that substitutes are impractical, are items produced on ratings of A-1-j or higher, items produced for certain governmental agencies, or to comply with underwriter or other safety regulations.

No restriction is placed upon the use of tin for cans and containers other than those already in force. A conservation order to be issued shortly will limit the production and use of cans and containers.

The order was necessitated by the stoppage of shipments from British Malaya, source of more than 80% of the U. S. normal tin consumption of 100,000 tons a year.

U.S. Controls Import of All Vital Metal

WASHINGTON, D. C.—The federal government last week took control of all imports of 13 materials vital to war production, and Donald M. Nelson, Director of Priorities, indicated that others may be added.

Materials listed were antimony, cadmium, chromium, copper, graphite, kyanite, lead, mercury, rutile, tungsten, vanadium, zinc and zircon.

General Imports Order M-63, which went into effect Dec. 28, provides that unless otherwise authorized by OPM, all future contracts for imports of these materials will be handled by Metals Reserve Co., RFC subsidiary, or other governmental agency. No private person can make arrangements for imports except by special permission of Director of Priorities.

The order does not disturb existing contracts or commitments, except that future shipments or goods now in transit may not be sold except to Metals Reserve Co., unless under written authorization of the Director of Priorities.

The order provides that all persons who have made arrangements for imports affected by the order shall report the facts immediately to Metals Reserve Co.

Control of imports was taken, it was explained, as a result of the policy of SPAB that steps be taken to insure, insofar as possible, adequate supplies of materials.

Report Says Industry Can Up Production 75% as It Stands

CHICAGO — American industrial concerns can increase their wartime production by 75% during 1942 without building a single plant or adding a single machine, declares George S. May, chairman of the board of the George S. May Business Foundation.

A recently completed survey by Foundation engineers of 1,000 manufacturing concerns, Mr. May said, revealed an average production efficiency of only 55% in plants operating on a day-work basis, with only a very few companies operating at 60% or better of possible efficiency. He recommended use of the following devices by war-work factories as the quickest and surest way to step up the flow of munitions:

1. Establish improved methods based upon a scientific job analysis to determine the one best design and one best method of fabrication of each article. Supplement this by setting standards, based upon time studies, for each manual operation in the plant.

2. Adopt a production control plan for the systematic scheduling of work in accordance with these established standards of operation, such a plan to take into account the capacity of each production center in the plant, and to govern the distribution of work in such a way that there is neither congestion or bottlenecks nor idle men or machines.

Servel Year's Profit Totals $2,737,603

EVANSVILLE, Ind.—Servel, Inc. for the fiscal year ended with October reports net profit of $2,737,603 after Federal taxes and all other charges. Earnings were equivalent to $1.53 a share on 1,781,426 shares of common stock outstanding. Net profit for the preceding fiscal year was $2,969,976, or $1.67 a common share.

For the fourth quarter of the fiscal year, ended Oct. 31, net profit was $389,545, or 22 cents a common share. This compares with $684,421 or 38 cents a share for the corresponding three months of the preceding fiscal year.

With the defense program going full blast, the great army of civilian workers and military men must be fed. This requires ample food storage facilities and proper refrigeration equipment to prevent food spoilage. Worn out, obsolete condensing units that lag on the job providing poor refrigeration are taboo.

Brunner condensing units provide dependable refrigeration and protect foods from spoilage. Manufactured under rigid control, by experienced craftsmen on modern machines, Brunner condensing units give users extra years of protection. Besides, their efficient low cost operation helps to keep down overhead thus counterbalancing today's higher costs of business operation.

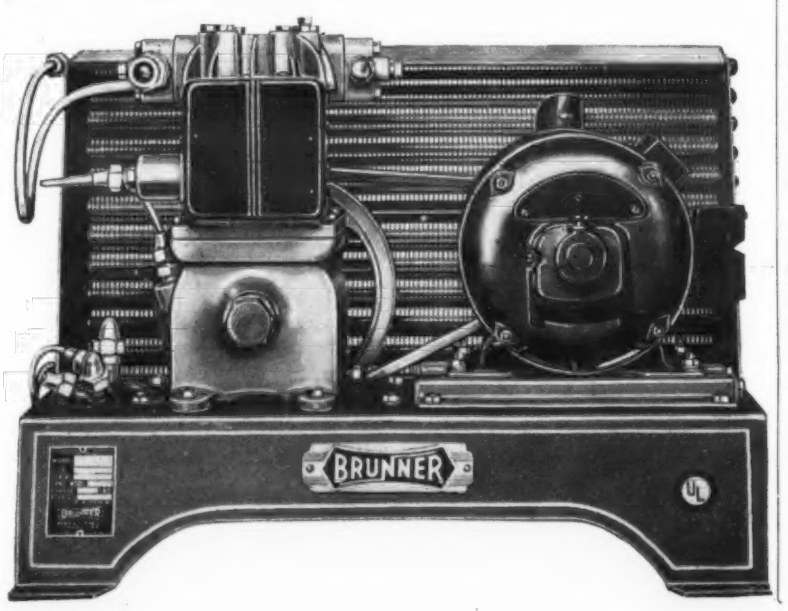
Brunner condensing units are available in air and water cooled models for ¼ to 25 tons of refrigeration. Write for fully illustrated catalog today. Brunner Manufacturing Company, Utica, New York, U. S. A.

BRUNNER

CONDENSING UNITS

BRUNNER MODEL A-33

⅓ h. p. air cooled condensing unit, ideal for small display cases, cooling cabinets and boxes.



News ABOUT THE NEW

1942 FRIGIDAIRE REFRIGERATORS

Frigidaire refrigerators for 1942 are now being introduced to Frigidaire Dealers.

These models are brand-new and greatly improved. They are built to the high traditions of Frigidaire quality, worthy successors to great Frigidaires of the past.

Frigidaire engineers and craftsmen have done an outstanding job. Their achievements will be hailed with enthusiasm.

WHAT'S NEW?

The 1942 models are bigger, more beautiful, and more useful. Many new sales features have been added. For example:

NEW Convertible Interiors — that can be arranged in a dozen or more ways quickly and easily — give each user exactly the right kind of storage space for her particular needs.

NEW and Bigger Frozen Storage Facilities have been designed to give maximum utility. In 1942, with the popularity of fast frozen foods growing by leaps and bounds, this Frigidaire advantage will have an especially strong customer appeal.

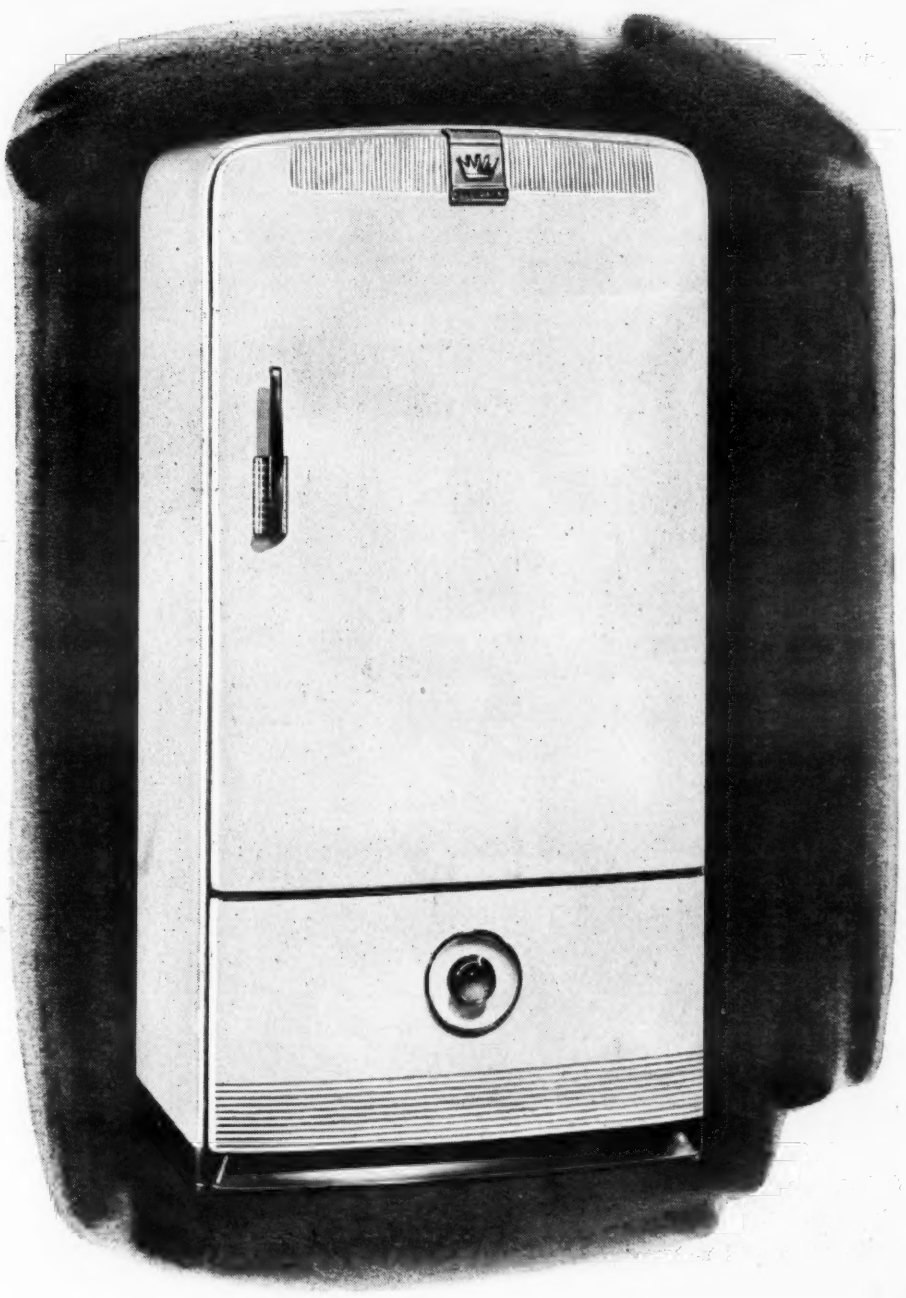
NEW Drawer-Type Meat-Tenders are also much larger. More and more housewives will be buying in quantities this year to save money. Frigidaire refrigerators are designed to help them.

Along with these and many other new advantages Frigidaire will continue to offer the Meter-Miser, Quickube Trays, Sliding Glass-topped Hydrators, and many other time-tested features.

HOW MANY?

No one can prophesy with any accuracy how many products will be built in 1942. This is war time and the war needs of our country must come first.

This much is known. Every product Frigidaire makes will



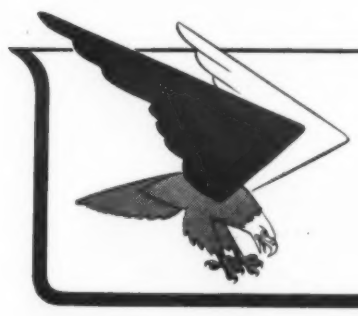
be a good one, and as many will be built as is possible. Every effort also will be made to provide Frigidaire parts wherever needed to keep products in customers' homes operating efficiently.

OUR PLANS?

In times like these, long-range planning must naturally be subject to frequent modification to meet changing conditions. Recognizing this fact, Frigidaire will continue its policy of providing Dealers with all possible information and plans, to aid in meeting their many unusual and important problems, throughout 1942.

Frigidaire

EQUIPMENT FOR HOUSEHOLD, COMMERCIAL AND INDUSTRIAL NEEDS



FRIGIDAIRE'S PART IN THE WAR

1. *To build machine guns and other armament.*
2. *To help protect the Nation's food and health.*

FRIGIDAIRE DIVISION • GENERAL MOTORS CORPORATION • DAYTON, OHIO

Stocks of Tin and Rubber Sufficient For Only One Year

NEW YORK CITY—In explanation of the severe restrictions that have been put on rubber, tin, and other strategic materials from the Far East, the National Industrial Conference Board has issued statistics to show that current stocks amount to a little more than a normal year's supply.

Current supplies of crude rubber amount to about 600,000 tons, with another 125,000 tons in transit, it was pointed out, while normal annual consumption is 600,000 tons.

Total stocks of tin were estimated at 140,000 tons, or slightly more than the 100,000 tons used in peace time. However, a new smelter for refining ore from Bolivia, now under construction in Texas, is expected to supply about one fourth of the country's requirements.

Nearly four fifths of these materials came from the Far East in 1940. About 52% of the crude rubber imported into the United States came from British Malaya, about 35% from the Netherlands Indies, and 16% from Ceylon and French Indo-China, so that 99% was from areas now threatened by Japan.

About 77% of the 125,000 tons of tin imported in 1940 were from British Malaya, and about 10% from the Netherlands Indies. Nearly three fifths of the country's imports of tungsten and about one third of its imports of chromite were supplied by the Far East in 1940, the board reported.

Vacuum Cleaners Given Big Cut For Quarter

WASHINGTON, D. C.—Cuts ranging from 25 to 40% in production of domestic vacuum cleaners during the first quarter of 1942 were ordered last week by Donald M. Nelson, Director of Priorities.

During January, February, and March, Class "A" manufacturers whose average monthly factory sales in the 12 months ended June 30, 1941, were 5,200 or more units, will be required to curtail output 40% below the monthly average. Class "B" manufacturers, whose average was less than 5,200 units, must cut production 25%.

Under the original curtailment program, which ran from Oct. 1 to Dec. 31, 1941, Class "A" firms were cut only 10%, while Class "B" companies were restricted merely to 100% of their base year production.

Ice Box Steel Use Cut 40% For 1st Quarter

WASHINGTON, D. C.—Use of steel in non-mechanical ice refrigerators is cut 40% for the first quarter of 1942, it has been announced by the OPM.

During January, February, and March, steel consumption is cut 40% below the monthly average used in the 12 months ended June 30, 1941, or in the three years ended June 30, whichever is the fairer base period for the manufacturer.

Curtailment of steel in the last quarter was only 35%.

Crosley Appoints Six New Distributors

CINCINNATI — Appointment of six new distributors for Crosley products has been announced by R. I. Petrie, vice president and general sales manager of Crosley Corp. New distributors are: J. & N. Ceazan Co., Los Angeles; Wichita Wholesale Furniture Co., Wichita, Kan.; Dealer's Appliance Co., Kansas City, Mo.; Electric Fixture & Supply Co., Omaha, Neb.; Major Appliance Co., Jacksonville, Fla.; and Tracy-Wells Co., Columbus, Ohio.

Commercial Refrigerator Industry Now Taking Its Place On the 'Second Front' With Food Conservation Its Big Job

Message From the President of the CRMA

By J. W. Hart, Vice President, McCray Refrigerator Corp., and President, Commercial Refrigerator Manufacturers Association

It has been said—"in a modern war there are two important fronts"—we all have confidence in the first front—our men on sea, on land, and in the air.

We, in business and industry will serve on the second front.

In the very beginning—long before the wide-spread application of priorities and the institution of allocations—orders for refrigerators required for National Defense were given the right of way in the plants of the Commercial Refrigerator Industry and during the past year about 25% of its total productive capacity was devoted to making refrigerators for the government. Most of these—approximately 20,000 in all, went into the army camps. The War and Navy Departments have depended on our industry to furnish this equipment as required to cope with the emergency.

Much other equipment of a refrigerated nature has also been supplied to the Army, Navy, and Marine Corps. Fortunately, it has been spread out so that the industry has been able to meet the urgent deliveries usually required.

In addition, we are working continuously and coöperatively on special equipment that may be required by the War Department. Out of a desire to meet their requirements there has been no thought of "business as usual" and normal business has been shoved aside.

While no accurate figures are available, a certain per cent of our production facilities has been devoted to the manufacture of items of a non-refrigeration character. Some of these include tent pins and poles, portable housing units, buoyancy chambers for planes, parts of airplane wings, ordnance boxes, practice bombs, mess tables and benches, various wood parts, and sheet metal parts.

Through individual effort and through the untiring and unselfish efforts of our Defense Committee we shall continue to exert every possible energy to the support of our armed forces in meeting the attacks made upon the United States. We shall have a share in the colossal program undertaken to demonstrate to the world that we can by keeping our essential freedom, exert our full might.

Naturally, conversion of raw materials to those industries called upon to turn out the implements of war—tanks, guns, and planes, will necessarily create a shortage of goods for civilian supply. Plans are now under way in Washington and the new curtailment order for our industry will very likely be announced before this issue goes to print.

As an industry we expect to successfully cope with the problems and adjustments that are inevitably ahead. We are united as one man—all eager to cooperate, and have dedicated ourselves to the job that is ahead, fully realizing that we cannot have our cake and eat it too under the present emergency.

While the various curtailment percentages in the present tentative order are slightly higher than we anticipated, we must be realistic and get ready to adjust our normal production facilities to a war economy.

The situation may be alleviated in a few months when the process of working out the new allocations plan will redistribute inventories to a point where essential civilian industries—and ours is now so classified—will be allowed sufficient materials to carry on in a nearly normal fashion.

We all know that our industries have been most fortunate in securing raw materials. We haven't been hurt yet and the curtailment order perhaps is consistent with our degree of essentiality to civilian supply. We are still a very important industry in protecting and safeguarding the health of the nation. *Food will win the war and write the peace.*

We have been attacked—we are at war, and we have a war to win.

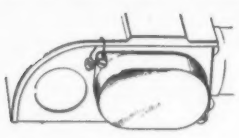
What of 1942? No serious minded person would attempt to predict a pattern of events for this coming year. A world at war is not a sane world. There can be no thought of "business as usual"—no more than we can envision a "living as usual" formula—until the Star of Peace once again shines bright.

Yet as we look ahead we see some things that cannot be blacked out by the struggle in which our country is now engaged. Among them is courage—to dig in and do a job—the "damn the torpedos; full speed ahead" kind of courage that has made America what it is.

Also very clear on the horizon is a special brand of happiness—not the indefinable kind that springs so easily to our lips in a prosaic New Year greeting—but the kind that comes only from hardships and sacrifice, endured in a just and victorious cause.

We have a war to win.

You Get These Extra Features at No Extra Charge

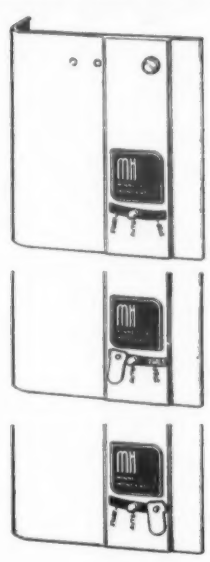


The standard tamperproof cover may be sealed in place over the adjustment knobs when necessary. (First sketch.)

You Need Only a Small Stock
TO MEET ALL TEMPERATURE OR PRESSURE CONTROL REQUIREMENTS

■ The versatility of Polartron gives it universal application. With its standard plus features and accessories, Polartron can be quickly adapted to any and all control requirements. A minimum stock of three basic models gives you hundreds of types and applications. Polartron is extremely simple and easy to install, and has only one moving lever... Look at these features: Separate "On and Off" Knobs ★ Universal Range ★ Capillary Pressure Connections ★ Fewer Models to Stock ★ Cold Control on Cut-Out or Cut-In ★ No Short Cycling ★ Minimum Free Service ★ Polartron Equipped Compressors can be Converted to Produce Frost-Free Constant Cold... Polartron will often save 20 to 40 percent in power and will greatly conserve food by eliminating spoilage. Minneapolis-Honeywell Regulator Company, 2807 Fourth Ave. S., Minneapolis, Minn. Branches in principal cities.

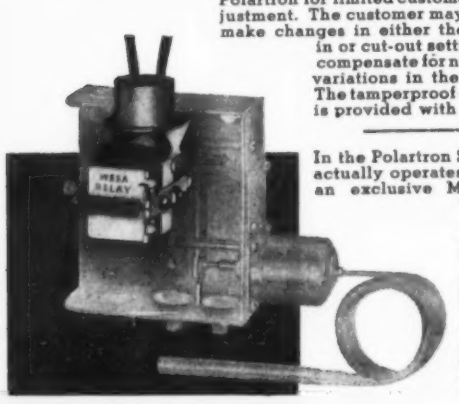
Auxiliary Covers to Provide Manual Start, Stop or Both



Supplied as standard is a COLD CONTROL LEVER that may be applied to either the cut-in or cut-out adjustment knob on the P420 or P421 Polartron for limited customer adjustment. The customer may then make changes in either the cut-in or cut-out setting to compensate for normal variations in the load. The tamperproof cover is provided with a slot on one side to accommodate the cold control lever. (See second sketch.)

For cases, coolers or walk-in boxes, the lever may be APPLIED TO THE CUT-OUT ADJUSTMENT, leaving the cut-in setting undisturbed to ensure defrosting of the coils. (See second sketch.) For freezers or beverage coolers, the lever is APPLIED TO THE CUT-IN ADJUSTMENT, leaving the cut-out setting undisturbed to prevent freezeup. (See third sketch.)

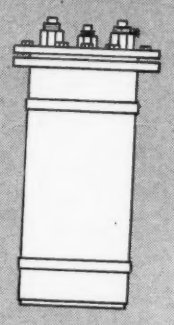
To provide manual start or stop, or both, the W66A cover may be added to any Series 40 Polartron. For example, the cover may be used for manual start on milk or beverage coolers . . . or for manual stop on systems used intermittently.



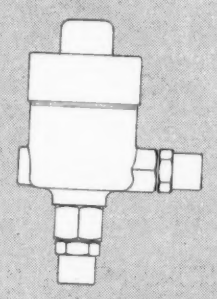
In the Polartron System the thermostat actually operates the pressure control, an exclusive M-H feature available whenever you:

1. Install a Palartron on an old or new job.
2. Modernize old jobs by installing Polartron.
3. Whenever you install a compressor which comes equipped with a Polartron.

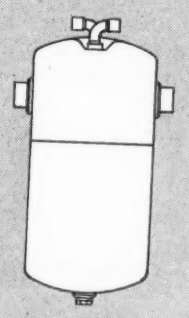
MINNEAPOLIS -HONEYWELL
REFRIGERATION *Control*



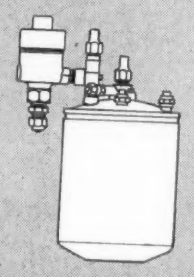
Standard—oil separators—used on Army, Navy and civilian refrigeration machines.



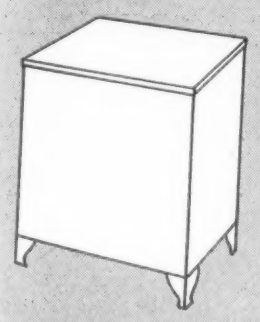
Standard (temperature-pressure) control valves. Used on Navy refrigeration applications.



Standard — heat exchanger units. Used on Navy refrigeration applications.



Standard — instantaneous liquid cooling units. Used in vital Defense plants, cooling lubricants, welding heads, circulating jackets, etc.



Standard—controlled temperature photographic processing unit, used by Government hospitals, Marine Corps and vital Defense industries.

TEMPRITE PRODUCTS CORPORATION

DETROIT MICHIGAN

Originators of Instantaneous Liquid Cooling Devices

47 PIQUETTE AVENUE

January 14, 1942

TO OUR FRIENDS IN THE INDUSTRY

Up until Sunday, December 7, we had hoped to meet with you in Chicago at the All Industries Convention to tell you of our new products and program, and to discuss mutual industry problems with you. On that Sunday morning, both your plans and ours were tremendously changed, and in place of a personal visit, we wish to take this means of telling you our story.

The story is a simple one. We are now all out for Defense and Victory, and all of our facilities are being devoted to that objective.

To a certain extent we are still building our standard products, water and beverage cooling units and refrigeration accessory items, and are selling them for their normally intended purposes. We expect to continue doing this to the extent that our Government believes these normal products are necessary for the national well being.

To a greater extent, we are building our standard products for use on direct Defense applications. The accurate temperature control and high capacity of Temprite units are particularly valuable on these very important projects. We feel that you can work with us on these applications, because many of them are in Defense plants in your own neighborhood, where liquids of all descriptions must be cooled and maintained at proper temperatures. We suggest that you canvass these fields for problems in liquid cooling. You will find many of them, and will render a distinct service in providing equipment by which these problems can be solved.

Most of our work, however, is now in new fields. A large quantity of Temprite equipment is now going directly for use with the armed forces. Much of it is in the form of "controlled temperature photographic processing equipment", where again the problem is largely one of efficiency, heat transfer, and accurate temperature control. Our knowledge and experience of engineering in general, and refrigeration in particular, have suited us for the development and production of this equipment.

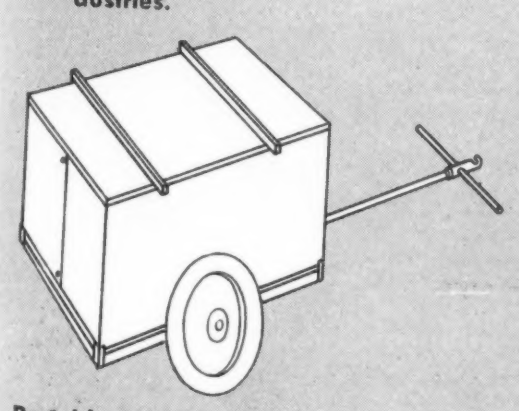
Until the day when we can again meet for a national convention in a peaceful world, our purpose is to use every effort at our command to advance our country's war program, and we will welcome the opportunity of working through you and with you on this job.

Yours very truly,

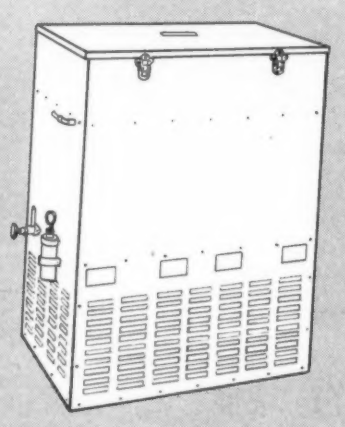
TEMPRITE PRODUCTS CORPORATION

John Wyllie Jr

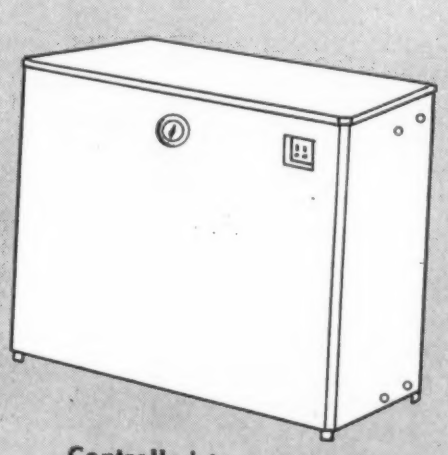
John Wyllie, Jr.
General Manager



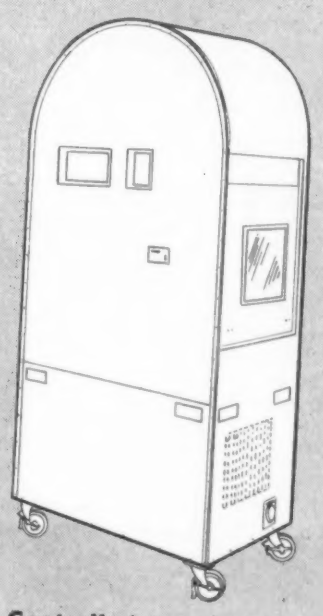
Portable photographic dark room.



Controlled temperature photographic processing unit.



Controlled temperature X-ray processing unit.



Controlled temperature photographic drying unit.

11 Nema Firms Ship 93,974 Household Refrigerator Units During November

The following 11 companies reported sales to the Refrigeration Division of the National Electrical Manufacturers Association (Nema) on household electric refrigerators for November, 1941:

Crosley Corp., Edison General Electric Appliance Co., Inc., Frigidaire Div. General Motors Corp., Gale Products, General Electric Co., Gibson Electric Refrigerator Corp., Nash-Kelvinator Corp. (includes sales of Kelvinator and Leonard), Norge Div. Borg-Warner Corp., Stewart-Warner Corp., Sunbeam Electric Mfg. Co., and Westinghouse Electric & Mfg. Co.

The sales of the reporting companies include units manufactured for the following concerns: Montgomery Ward & Co., Potter Refrigeration Corp., and Sears, Roebuck & Co.

SALES FOR NOVEMBER, 1941

	Domestic	Canadian	Other Foreign	Total World
Lacquer (Ext.) Cabinets Complete				
1. Less than 4 cu. ft.	747	1	1,595	2,343
2. 4 to 4.99 cu. ft.	6,425†	274	1,191	7,890
3. 5 to 5.99 cu. ft.	78	20	...	98
4. 6 to 6.99 cu. ft.	37,496	1,709	1,195	40,400
5. 7 to 7.99 cu. ft.	25,249	1	1,099	26,349
6. 8 to 8.99 cu. ft.	4,093	33	280	4,406
7. 9 to 12.99 cu. ft.	5,086	1	243	5,330
8. 13 cu. ft. and up	4	...	...	4
9. Total Lacquer	79,178	2,039	5,603	86,820
Porcelain (Ext.) Cabinets Complete				
10. Less than 5 cu. ft.	...	...	...	...
11. 5 to 5.99 cu. ft.	...	...	...	...
12. 6 to 6.99 cu. ft.	1,091	...	216	1,307
13. 7 to 7.99 cu. ft.	3,790	...	159	3,949
14. 8 to 8.99 cu. ft.	887	...	16	903
15. 9 to 12.99 cu. ft.	384	...	211	595
16. 13 cu. ft. and up	267	...	14	231
17. Total Porcelain	6,419	...	616	7,035
18. Total—Lines 9 and 17	85,597	2,039	6,219	93,855
19. Separate Systems, ¼ Hp. or Less	...	...	119	119
20. Total Household Equipment	85,597	2,039	6,338	93,974
Value Index*	177.0	379.0	89.0	168.0

*Based on weighted sales for 1934, 1935, and 1936. †Includes sales and credits.

Cleveland Dealers Join Advertising Drive To Publicize New Terms

Follow Coast Campaigns

CLEVELAND—Following the success of west coast campaigns by appliance dealers to educate the public to new credit terminology, the General Electric Dealers Association of this city has sponsored a cooperative advertising program in local newspapers, emphasizing the fact that new government credit restrictions make it possible for the public to buy appliances on the same easy basis as before, if not actually easier.

Each advertisement featuring a refrigerator, range, water heater, or washing machine showed two sets of credit plans, one representing the former city standard, and the other the new time-payment plan. Customers were asked to make their own comparisons.

Also announced was a new "Lay-Away" plan developed by the group, whereby prospective appliance prospects may have appliances laid away, paying small weekly amounts until the one-third down payment is accumulated, the appliance then being delivered on the standard time-payment basis. Emphasized was the fact that shorter payment time cuts down on carrying charges. The series did much to change the minds of limited-income buyers who felt new refrigerators and ranges were out of their reach, dealers report.

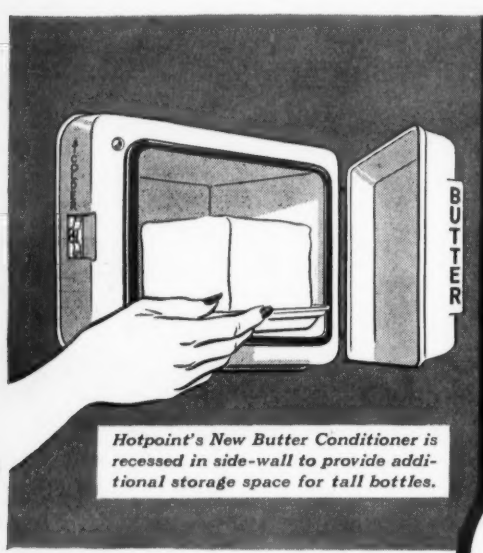
Tips Doubled With Defense Stamps

Waiters and waitresses, bellboys, porters, and taxi drivers will have their tips from Norge representatives doubled during the war in a plan initiated by Howard E. Blood, president of Norge Division, Borg-Warner Corp. While John Carstens, deputy administrator for the Defense Savings Plan, looked on, Major Blood tipped Waitress Lora Goodman of the Detroit Leland twice the normal amount, paying half in cash and half in stamps.

NEW

Butter Conditioner

IN HOTPOINT REFRIGERATORS



Hotpoint's New Butter Conditioner is recessed in side-wall to provide additional storage space for tall bottles.

Not just a Gadget...
BUT A GREAT NEW FEATURE!

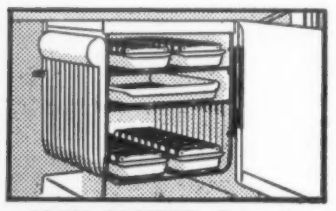
DE LUXE DORIC—*7 cu. ft. capacity, one or Hotpoint's many new 1942 refrigerators.*

... A GREAT *Plus* CONVENIENCE

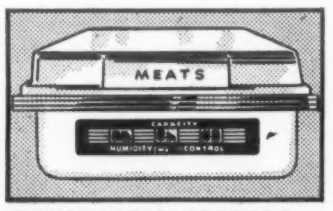
HEADING the list of Hotpoint's Great New Refrigerator features for 1942 is the Butter Conditioner. But there are many more outstanding features. The slogan 7 + 7 which dominates Hotpoint's new program is more than a mere advertising theme. It typifies the big capacity — 7 cu. ft. plus the flexibility of food storage provided — 7 zones of food preservation:

1. Easy-Clean Speed Freezer.
2. Six-way Cold Storage Zone.
3. Butter Conditioner.
4. Beverage and Big Bottle Zone.
5. General Food Storage.
6. Measured Humidity for fruits and vegetables.
7. Dry Storage for canned goods.

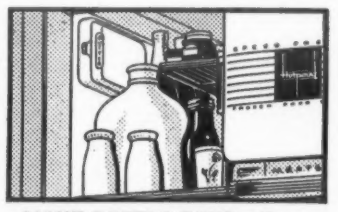
Below are illustrated a few of the basic design essentials to adequate refrigeration. They are found in Hotpoint's new 1942 de luxe models. See your Hotpoint Distributor today for complete details. Edison General Electric Appliance Co., Inc., 5632 W. Taylor St., Chicago, Ill.



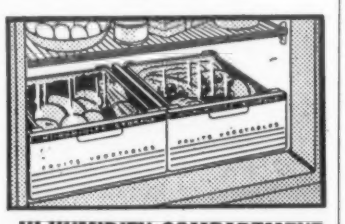
SPEED FREEZER—Ice cubes and desserts are frozen quickly in this glistening white porcelain, Easy-Clean Speed Freezer. Also ample space for fast-frozen foods.



6-WAY COLD STORAGE—Meat storage pan and chiller tray may be arranged in 6 different combinations for preserving meats, desserts, surplus ice cubes, beverages.



GIANT BOTTLE ZONE—Space for bottles, even full gallon size is provided in the cold zone next to Speed Freezer. Adjustable part-shelf for small-size packaged foods.



HI-HUMIDITY COMPARTMENT—Provides the proper degree of cold and moisture in proper balance to keep vegetables crisply fresh. Fitted with glass tops, food is always visible.

Visit Hotpoint Showrooms, 528 Furniture Mart, Chicago, January 5 to 17

Hotpoint ELECTRIC REFRIGERATORS

By Every Yardstick—A Great Refrigerator Buy

RANGES · WATER HEATERS · WASHERS AND IRONERS · CLOTHES DRYERS · AUTOMATIC DISHWASHERS · ELECTRASINK · STEEL KITCHEN CABINETS

Dun & Bradstreet To Survey Factories, Dealers on Effects of War on Industry

NEW YORK CITY—The 600,000 retailers and 200,000 manufacturers of the United States will be surveyed by Dun & Bradstreet, Inc. during January and February, in an effort to obtain exact data on how the national defense program has affected industry.

There will be two separate surveys, one of retailers and one of manufacturers. The surveys are expected to show, by industries, the proportion of goods available to civilian use as compared with defense requirements and as compared with 1940.

It is also planned to summarize the changes made in distribution policy, selling effort, and advertising by those industries unable to meet civilian demand. The manufacturers survey will also examine the problem of scarce materials and other obstacles to civilian production.

Retailers will be requested to list types of goods difficult to obtain from wholesalers and manufacturers under four degrees of "availability": "none"; "not enough to meet demand"; "enough, but after delay"; and "only at exorbitant prices."

Retailers will also be asked to estimate the percentage of their purchases from wholesalers or jobbers and manufacturers, figures on their annual net sales, value of merchandising inventory, and the amount of goods on hand (in units) as compared with a year ago. In addition, they are asked to list their secondary lines, with percentage of total volume. Retailers are invited to comment on changes in suppliers' credit, selling, or delivery policies, and whether they have dropped any lines because of shortages or added any lines to maintain volume.

The survey of manufacturers calls for comparisons of defense to civilian sales during 1941, and a comparison of 1941 civilian sales with those of 1940. Manufacturers are also requested to list "obstacles to civilian production, changes in distribution policy, and changes in selling effort."

Information will also be sought on whether lines have been simplified.

Final question in the manufacturers survey deals with scarcity of materials. Twenty-six critical materials are listed, and manufacturers are asked to indicate if they "have suitable substitutes" for the material or materials they customarily use; if they have "reduced the use of this material per unit of production without substitution"; or if they have "curtailed or stopped production on any non-defense item which requires this specified materials."

These questionnaires do not conflict with any inquiries now being conducted or planned by OPM or OPA, according to Walter Mitchell, Jr., of Dun & Bradstreet.

New York, Pennsylvania Top States In Sales During November

States and Territories	Household Low Sides November	Cumulative
Alabama	873	38,275
Arizona	257	10,333
Arkansas	523*	22,956
California	5,213	220,196
Colorado	483	21,846
Connecticut	1,885	66,054
Delaware	205	8,044
District of Columbia	2,571	33,420
Florida	1,794	41,283
Georgia	1,465	50,940
Idaho	236*	12,136
Illinois	4,578	229,634
Indiana	2,187*	95,347
Iowa	1,317	59,753
Kansas	1,000	30,676
Kentucky	938	41,503
Louisiana	712	38,930
Maine	384	15,854
Maryland	1,740	41,665
Massachusetts	3,179	120,802
Michigan	4,594	168,232
Minnesota	1,347*	89,631
Mississippi	323*	21,236
Missouri	1,781	84,071
Montana	152*	9,337
Nebraska	393	21,982
Nevada	95	3,080
New Hampshire	316	12,916
New Jersey	3,855	134,557
New Mexico	82*	5,128
New York	14,723	341,848
North Carolina	1,684	58,216
North Dakota	76	5,358
Ohio	4,914	220,294
Oklahoma	584	28,782
Oregon	837	33,145
Pennsylvania	6,755	281,307
Rhode Island	503*	21,495
South Carolina	559*	31,044
South Dakota	50*	6,574
Tennessee	1,134	56,313
Texas	3,251	123,428
Utah	393	16,350
Vermont	131*	6,938
Virginia	1,141*	56,209
Washington	1,239*	58,487
West Virginia	980	34,383
Wisconsin	1,837	76,216
Wyoming	319*	3,780
Total United States	85,597	3,210,034
Canada	2,039	55,938
Other Foreign (Incl. U. S. Possessions)	6,338	118,570
Total for World	93,974	3,384,542

*Includes sales and credits.

Parts Jobber Must Be Ready With 'On the Spot' Supplies & Information

Message From the President of the N.R.S.J.A.

By C. E. Borden, the A. E. Borden Co., Boston, Mass.
President, National Refrigeration Supply Jobbers Association

What a fallacy—what a short-sighted viewpoint—today. A year ago we were a smug, self-satisfied segment of a smug, self-satisfied democracy. It has been a very painful transition but we of the refrigeration industry can now say "Today I am a man." Our feet are on the ground and we have taken our place in the front line industrial trenches.

We no longer feel that it is our patriotic duty to fight for more metals for refrigeration. There is no longer any doubt that as a democracy we have a job to do. If we are fortunate we will be an arsenal—if we aren't, we will be a battlefield. There is no question as to which we prefer. If we don't do a good job on the former, the latter will be our certain lot.

A cooperative industry is today helping OPM officials pick out and eliminate the non-essentials. Preservation of food is vital as a part of our national economic picture—not from a personal profit motive standpoint. The question today is not how many will be thrown out of work, rather it is the grim question, how many lives will we save.

Our own flesh and blood are dying on battlefields. They need arms—munitions—equipment. Do we at home, living in comfort and security, miss copper tubing, driers, expansion valves, or any other article that will make their lot easier? The question is its own best answer.

The refrigeration supply jobber has proven himself to be a definite part of the defense picture. Navy Yards, army camps, air bases, defense industry, all are drawing daily on the jobbers for maintenance supplies.

We can't all lay down our daily tools and shoulder a gun, neither can all turn to producing arms. A vast integrated chain of supplementing industries are needed to support and equip our armies. The jobber fills a niche in this picture that is not otherwise duplicated. On the spot supplies—widely diversified—are a requisite today.

To do his job well the jobber must maintain adequate stocks to keep essential food storage equipment running. An adequate stock today is about one half of what we think it is plus a liberal application of ingenuity.

The jobber has another important duty. He must serve as an information center. The trade can do much to conserve metals if they have a clear picture of the underlying facts. Many devices can be re-operated that were formerly discarded. Junk metal should find its way into the proper salvage channels.

Above all else, let us remember to win as quickly as possible—may we keep this one fact before our eyes—whether we are looking at an empty stock bin or making up our income tax.

Protest Against Hokum In Air Conditioning Claims Gets Backing

The Connecticut Ice Machine Co., Inc.
South Norwalk, Conn.

Editor:

Having read with interest the correspondence your paper carried regarding air conditioned apple storages, I would like to ask what Mr. Leffingwell means by saying that "instead of scattering ammonia pipes around the room we circulate treated air." From our experience ammonia pipes are not something that one scatters about promiscuously. Also we resent the implied derogatory reference to ammonia pipes.

We have a few apple storage jobs around using direct expansion ammonia coils and we would like to have the product from some of these storages judged against the product from Mr. Leffingwell's "air conditioned storage."

An agent of the Surplus Commodities Corp. who had purchased apples from Oregon to Maine, after inspecting fruit from one of these storages, is on record to the effect that he never saw apples kept in better condition. In the final analysis, what is more conclusive than the condition of the fruit after being in storage for five or six months.

Furthermore, most major manufacturers of ice machinery and a number of coil and evaporator manufacturers have built unit coolers for many years which appear to answer the description of "circulating treated air" although what the "treated" means unless it means cooled is something else we would like explained.

All in all we wish to commend the Frick representative for calling you in the first place. There has been altogether too much hokum about air conditioning foisted on an unwitting public. All that is necessary to keep apples in perfect condition is the correct application of ordinary commercial refrigeration products, even including "ammonia pipes."

JOHN L. IRVING

Publication Issued By Coast Supplier Has 10th Birthday

LOS ANGELES—One of the oldest house organs to be continuously published by a refrigeration jobber—"The Liquid Line" of L. P. Roth's Refrigeration Service, Inc.—celebrated its tenth anniversary here in November. For it was on Nov. 18, 1931 that Vol. 1, No. 1 of this monthly bulletin appeared.

Purpose of "The Liquid Line" was explained in the following paragraph contained in the first issue of this mimeographed publication:

"In the last few years there have come to us many times sales stories, service helps, jokes, and many other items which we were sure would be of interest to our customers if the information could be passed on."

Incidentally, this same issue of "The Liquid Line" contained a powerful "plug" for the NEWS, which had just changed from a bi-weekly to a weekly publication.

Attention of the NEWS was called to the anniversary of "The Liquid Line" by W. T. Wyatt of Servel (Canada) Ltd., Toronto, Canada, who has been on the mailing list of this publication since its inception.

M. S. Smith Vice President Of Buensod - Stacey

NEW YORK CITY—M. S. Smith, general manager of Buensod-Stacey Air Conditioning, Inc., 60 E. 42nd St. here, has been elected vice president of the firm. Mr. Smith has relinquished his post as treasurer to W. J. McDonald.

A. E. Stacey, Jr., the Stacey of Buensod-Stacey, is now a commander in the Navy and is on active duty in the Pacific, reports A. C. Buensod, president of the firm.

Today's Keynote

A GENERAL once said, "Give me one cool head in the heat of battle and I can match fifty who do not stop to think." The potency of the calm reasoning of that one cool head points the way for our reasoning in dealing with the economic battles that will continue to confront us all throughout this indefinite period.

Reducing this to present day actualities; let's look at the facts. Many materials and much skilled manpower are essential to the Defense of our democratic Government whose freedom has made possible the personal progress and individuality that has built the America we know. We here at Kerotest have an intense loyalty for both this Government of the people and your industry *for* the people . . . and we pledge support to both through activity and tolerance.

Activity and tolerance . . . the keynote for today! Activity translates to us as an unceasing effort by all to provide every needed essential to Defense and to divert every remaining effort toward maintaining our own production and distribution because of its essential character in both civilian morale and the subsistence of an armed force.

But action alone is not sufficient . . . just as the General condemns fifty men of action who do not think . . . action . . . striving . . . effort must be guided and moderated by tolerance. This calls for clear-headed thinking by all . . . the consumer . . . the distributor . . . the manufacturer. All for a single urgent cause . . . an emergency we can not overlook . . . an economic situation that revolves around shortages of skill and materials.

The consumer might well look with sympathetic understanding on the distributor who can no longer deliver or accepts an order for delivery when possible. No irritation . . . but consideration rather, should result between jobber and manufacturer and revert back to suppliers and beyond that, to raw material producers. Each faces exactly the same problem . . . shortages . . . and only *tolerance* of circumstances, linked with *action* toward gradually rectifying the situation, can be of the slightest value.

Our suggested keynote for today does not sum up as a hard, fast rule. Each of us has individual problems to counter . . . and each must find a personal solution. But basically why shouldn't we all apply a general policy of *action plus tolerance* in our daily dealings?

At Kerotest we are united in an effort to lend every possible facility to National Victory . . . we are strong, too, in our belief that *you* play an essential part in this nation's concerted action and *deserve* all available assistance that Kerotest can lend.

Kerotest's part must and will be in the form of a continued supply of genuine, ever-dependable Kerotest Valves and Fittings . . . in the largest practical quantities . . . delivered as quickly as possible and distributed with discrimination based on necessity.

KEROTEST MANUFACTURING COMPANY
PITTSBURGH · PENNSYLVANIA

J. A. Staelan
General Sales Manager

KEROTEST

MANUFACTURERS OF TOP QUALITY VALVES AND FITTINGS FOR THE REFRIGERATION AND AIR CONDITIONING INDUSTRY

Refrigeration Equipment Makers Outline Product, Sales and Shipment Policies

Statements Key To Current Situation

Many manufacturers of refrigeration parts and equipment have confided to the editors that if the All-Industry Refrigeration & Air Conditioning Exhibition had been held in January, they would have shown few, if any, products. They declared that for the most part they would have concentrated on answering questions of customers and visitors, and outlining company policy as well as they could.

Thus, this issue, called the "show-in-print" issue, will probably be a more accurate facsimile of the actual Exhibition than many readers may realize—for the reason that both the advertisements and descriptive information from exhibitors and potential exhibitors place a heavy emphasis on policy rather than product.

Therefore, on the following pages the NEWS presents expressions from many manufacturers in the refrigeration parts and equipment field (all were invited to submit their ideas) concerning their outlook and policy for the coming year—along the lines that they might have told you at their booth in Chicago.

Among the questions asked in some of these statements are: What new products are you offering? Has your line been shortened? Will you add new customers, or confine sales to established accounts? How do you stand on shipments now? What can customers do to expedite deliveries?

The response was a little disappointing in terms of the number of manufacturers who would venture statements, but the information that was submitted serves as a key to the general industry situation.

'For Each Priority Order --One With No Rating'

"There have been no changes in our line—no new products," relates H. F. Spoehrer, vice president, Spoehrer-Lange Co. "All the old products — thermostatic expansion valves, solenoid valves, refrigerant distributors—are still available.

"About the only orders we'll accept from a new customer are those with an A-10 or better priority.

"We're limiting old customers to 50% non-priority at present. In other words for every valve ordered with priority of A-10 or better, we'll allot one valve of the same type without priority.

"This percentage may have to be changed later on but effective Jan. 1, 1942 this percentage will be used probably for some time to come.

"Small orders can be shipped within a day or two after receipt of order. Large orders run about 10 days to two weeks at present. We expect to be able to continue on about this basis.

"To assure getting priority orders promptly complete priority information and certificates should be sent with the order or immediately after. To cover orders not covered by specific rating it is important that form PD-25-c be sent each month. This also applies on non-priority orders. In other words, to assure delivery of the 50% or less of non-priority orders which we are allocating, complete information and priority assistance must be given to producers wherever possible on priority orders."

'Substitutes Make Possible Continued Shipments'

"Besides improvements in our standard line of beverage coolers and beverage cooling equipment, we will have large capacity industrial drinking fountains this year," says Louis Weiss, Ideal Beer Cooler Co.

"We will be able to take on new customers besides taking care of old ones, this being possible because of the adoption of new substitutes for materials.

"Because of our specializing in the past and foreseeing present conditions immediate shipment is possible and will be possible for some time to come.

"Where our products are placed for use in the war program or in some use recognized as essential by the OPM, our customers should ask for and extend priority rating certificates."

New Design 'Spreads Out' Materials For Controls

"As of Nov. 15, 1941, we shortened our refrigeration line materially," states A. B. Newton, manager, refrigeration division, Minneapolis-Honeywell Regulator Co. "After a very comprehensive study of sales data on our devices, we dropped 351 models of various devices and retained 148. The 148 remaining, together with two new devices, will satisfy between 98 and 99% of the control functions we previously provided with the entire line of 499 controls.

"Of course, our whole program for over a year has been to eliminate the 'specials' by throwing features required by them all into single controls in our standard line. For example, two new pressure controls incorporate features formerly requiring a standard model plus 22 specials. By addition of two available accessories, 10 more specials that we actually made are taken care of, and features are made available which would have required over 100 additional controls.

"We are adding to our controls for 1942 two devices accessory to these pressure controls. First is a bimetal attachment for the pressure control which eliminates the effect of cold locations, which sometimes prevent the pressure control from cutting in and keeping the refrigeration system in operation. Second is a remote-bulb assembly which will mount directly on the pressure control to provide in an even simpler manner our Polartron system.

"We are more than willing to add new customers where sales to them will not interfere with established accounts. So far we have not had to hold back, since the new devices which are becoming more and more our standard equipment use much less material than the older devices, and we can therefore produce with the same material a much greater number of controls.

"Under present conditions, we are still able to ship some devices from stock and expect to maintain stocks of these items. This is particularly true of the P420 and P421 Polartron pressure controls, which are the flexible units referred to above. On other devices, while we do not have stocks, we have adequate supplies of most parts and can ship without undue delay.

"To expedite deliveries, customers can obtain extendible priority certificates and extend them to us. This is becoming more and more essential. In fact, the new Chrome Order makes it practically mandatory for large classes of equipment, since there is no way of obtaining the material necessary for fabrication without at least an A-10 priority, and furthermore, all manufacturers are prohibited from fabricating parts using chrome steels listed in the Order, after Jan. 7. This will automatically mean that shipments of certain devices must have an A-10 priority or better.

"On the other hand, our experience to date indicates that a great many refrigeration sales are entitled to at least an A-10 priority, and that it is only a matter of people realizing this and going after extendible priorities in order to obtain them.

"The work done by Tecord, by the effort of the AIR CONDITIONING & REFRIGERATION NEWS, by various society groups, and by individual manufacturers in acquainting officials in Washington with the need for refrigeration undoubtedly accounts for the ease with which priorities can be obtained for refrigeration production.

"We are hoping that more and more of our customers will realize this, since as more of them do it, the percentage of priority orders increases and shipments for non-priority uses become more and more difficult. In other words, it will pay all purchasers of refrigeration equipment to get on the bandwagon and learn how to get priorities with an 'A' rating and extend them to their suppliers."

New Models Added To Meet Special Needs

"Kold-Hold line of plates and accessories has not been shortened," says Lee Worthington of that company.

"In fact it has been considerably extended to include several new catalog items, including packaged shelf stands for locker rooms, walk-in coolers, frosted food trucks, etc. Also, to include packaged plate banks for locker plants, walk-in coolers, ice cream hardening rooms, cold storage rooms.

"A line of industrial low temperature units has been added, also, for war work.

"Our policy is to add new customers, as well as to take care of our established accounts.

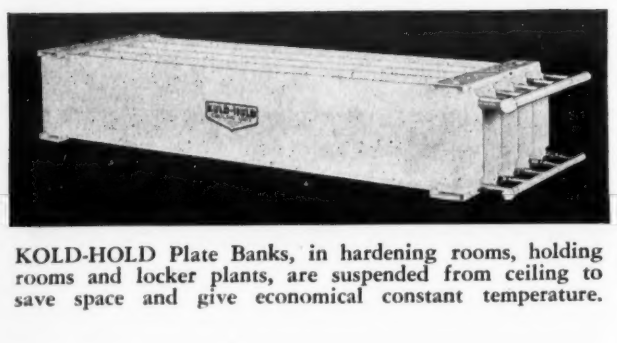
"We are making prompt shipments at the present time on all cataloged goods and expect to continue doing so unless the priority situation gets a great deal worse than we expect or anticipate at this time.

"On most of our lines customers are already giving us satisfactory priorities and of course the better the priority the better service they can expect to get from us.

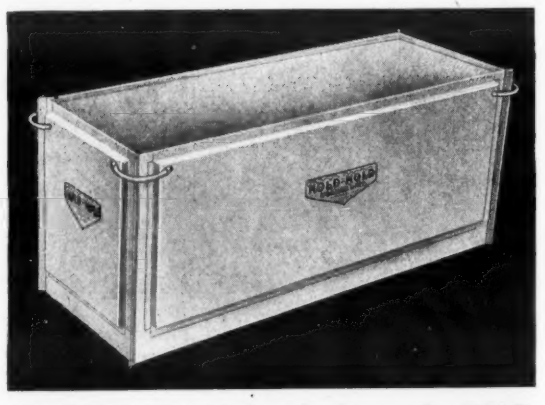
"We are now going to press with our new 1942 literature including sales bulletins on each of our lines, a comprehensive catalog, and a unique price list covering prices and illustrations with sufficient data to enable customer to order from this alone."

(Continued on Page 11)

KOLD-HOLD TRADE MARK

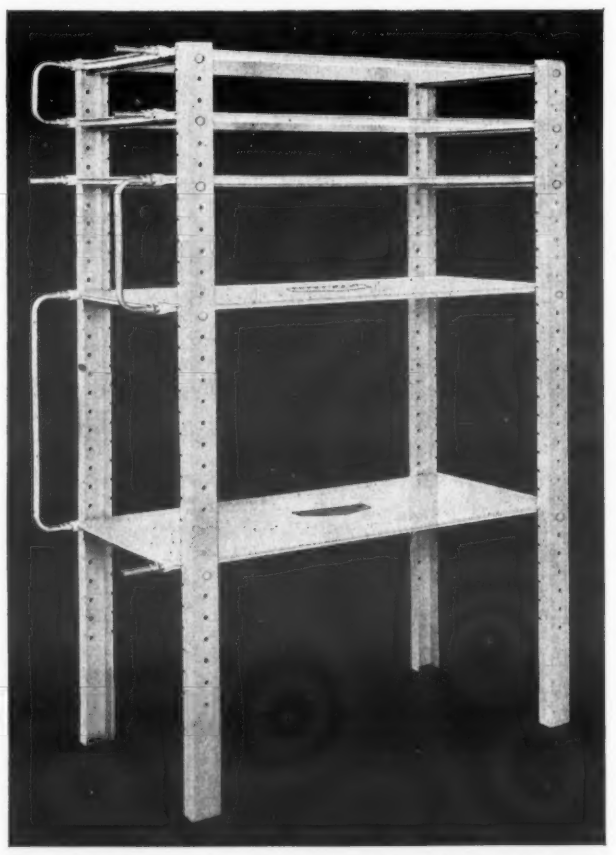


KOLD-HOLD Plate Banks, in hardening rooms, holding rooms and locker plants, are suspended from ceiling to save space and give economical constant temperature.



This KOLD-HOLD Tank made of two to five KOLD-HOLD Plates shows versatility of application. This tank can be made in a variety of sizes — with or without "hold-over."

KOLD-HOLD Truck Plates. There are 14 sizes and 42 combinations to meet all requirements. Guaranteed 10 years — give a lifetime of trouble-free service.



KOLD-HOLD Cabinet and Fountain Conversion Unit, showing the famous No. 5960 plates and the boiler head assembly. Any number of plates up to seven can be so arranged. Unit can be shipped complete ready to install. Converts old cabinets and fountains into new, efficient units.

KOLD-HOLD Plate Stand Set — ideal for holding and hardening rooms, walk-in coolers and locker plants. Number of plates and spacing to suit.

These are only a few of the many KOLD-HOLD refrigeration products. For "hold-over" or "quick-action" refrigeration plates to meet many regular, special and defense needs, see the NEW KOLD-HOLD Catalog C-42 — just off the press.

KOLD-HOLD MANUFACTURING CO.
431 North Grand Avenue LANSING, MICHIGAN, U. S. A.

Use SOLIDS·LIQUIDS·GASES·SOLIDS·LIQUIDS·GASES·SOLIDS·LIQUIDS·GASES·SOLIDS·LIQUIDS·GASES·SOLIDS·LIQUIDS·GASES·SOLIDS·LIQUIDS·GASES·SOLIDS DRIERITE *for Drying* Air Refrigerants Industrial Gases

DRIERITE, "The Versatile Desiccant," meets all drying requirements in Laboratory and Plant.

DRIERITE is one of the leading driers in the refrigeration industry and is widely used in the drying of air, the industrial gases, and the organic liquids and solvents in the chemical and engineering industries.

DRIERITE is the desiccant used in the Flosdorf-Mudd Cryochem Apparatus for the dehydration of serums and other biologicals from the frozen state.

DRIERITE is easily and rapidly applied—its performance efficient and economical.

Write for bulletins.

W. A. HAMMOND DRIERITE CO., Yellow Springs, Ohio

Manufacturers Say This . . .

'Will Serve Old Buyers' Until Material Runs Out

"(1) Our line has not been shortened or changed," reports Ed. Kellie, vice president, American Injector Co. "We have been planning a new 'Defense' liquid line filter, but have had to sidetrack it to some extent, but we have hopes of being able to present it to the trade before the 1942 refrigeration season gets under way.

"(2) We are not particularly anxious to take on new customers at the present time, as our defense efforts are making it no easy matter for us to take care of our established accounts. We are doing everything within our power to supply the needs of all of our old customers, and we wish to take this opportunity of assuring our old customers that we shall continue to do so as long as materials are available.

"(3) At the present time our shipments are fairly prompt, and we are trying to get as much stock as possible on our shelves in the hope that we shall be able to make shipments next season with as little delay as possible, regardless of the disruption in production due to war priorities.

"(4) Customers can do very little to expedite deliveries except supply us with full information on the priority ratings on materials which they order, and to mail priority extensions wherever possible with the order.

"Up to the present we have been operating on about 70% defense work. This does not mean, however, that our refrigeration work has been cut to only 30%. It simply means that we have been using considerably more of our facilities, and our actual volume of refrigeration sales was larger in 1941 than it was in the previous year. Some of this can be accounted for by orders received from the Navy and Army for actual refrigeration parts, and the big increase in our dehydrator sales on the Suredry line which we brought out last year."

New Facilities Step Up Production Rate

"The House of Mills is turning the skill of its engineers, and the facilities of its research laboratory to meeting the Government war-time requirements for the refrigeration industry, and yet maintaining high quality and efficiency of its products," says F. E. "Jerry" Jernberg, manager, refrigeration division.

"In our new refrigeration plant, Mills units are now being manufactured at an increased rate, and under the most modern and scientific methods.

"We are doing our part by putting forth ever-increasing efforts to meet the demands of our Armament Program and essential civilian needs."

Replacement For Cork Shows Rapid Gain

"News of the year on equipment insulation from our standpoint relates to the way Fiberglas in semi-rigid bat form has been accepted and used," states an official of Armstrong Cork Co.

"Because government demands for fiberboard were in excess of any manufacturer's ability to produce, normal use of Temlok and comparable products was considerably restricted.

"In addition, heavy demand coupled with OPM supply regulations caused corkboard to be not always available, so that as a result, Fiberglas took an important part in supplying insulation needs for refrigerated equipment. Fiberglas deliveries during the past year have been very satisfactory and should continue so during 1942.

"The following instances will serve to show how Armstrong's insulation products, Corkboard, Temlok, and Fiberglas, are being used in national defense projects: in Army cantonment reach-in refrigerators; in trailer housing projects; in motor transport insulation (ambulances, officers' mobile offices, survey trucks, Air Corps trucks); in camp hospital mortuaries; in large Navy walk-in refrigerators; in beverage coolers, milk coolers, ice cream cabinets, frozen food storage units, ice chests, display cases, and other types of food handling equipment for both Army and Navy; in short, in essentially every type of insulated equipment specified both by the Army and the Navy. It may be interesting to note that during the spring and summer months when the government was working at top speed to outfit its off-shore bases, unusual demands for prompt delivery of insulation materials were met to the complete satisfaction of the government construction agencies."

'Maintain Dealers' Says Air Conditioning Maker

Dealers will be as important as the factory itself in all of Chrysler Airtemp's efforts to employ its facilities to best advantage in the nation's victory program, says Paul B. Zimmerman, vice president and general sales manager, in describing the broad-gauge dealer program launched by the company.

"Heating, refrigeration, and industrial air conditioning," he explained, "are essential services, but they cannot be made available without a well-established, well-trained, and technically competent dealer organization. It is one thing to manufacture a mechanical product necessary for war use, it is another to see that it is properly installed and serviced.

"As a basic part of its forward-looking program," Mr. Zimmerman declared, "Airtemp is doing all in its power to maintain a steady flow of products to dealers. Most Airtemp products carry government priorities. The company has used its factory stock for the benefit of its dealers. Large factory contracts have been discouraged in favor of dealer business.

"As a further step, critical metals such as copper and brass, which are needed for armaments, have been practically eliminated from Airtemp products. Low-priced air conditioning units that require less critical materials than old style equipment are being developed. Already available is a vaporizing oil furnace which gives complete, automatic, winter air conditioning, yet weighs only about one-third as much as a hand-fired furnace, and costs little more than the older-type systems."

Air conditioning has been found essential to many manufacturing operations and processes vital to war production, and Airtemp is urging its dealers to make packaged cooling units available to tool and die shops, machine assembly plants, and other places where control of temperature and humidity is necessary.

"On another front," said Mr. Zimmerman, "the use of Airtemp condensing units, which have been employed in air conditioning, for commercial refrigeration will strengthen the dealer's position and permit him to participate in an essential part of the war effort—the preservation, storage, and transportation of food."

An important part of the Airtemp program is the educational activities, which include a recent series of 30 dealer meetings; the Chrysler Airtemp Institute, which is training dealers and their salesmen; and "Chrysler Airtemp News," which keeps dealers abreast of all Airtemp developments.

Under the program, dealers are being urged to extend their service customer with a continuing service. on Airtemp products and give the dealer a constant source of revenue.

(Continued on Page 12)

WAR FRONT AND HOME FRONT

A MAJOR part of Weatherhead facilities is devoted to the production of direct necessities for defense needs. This front *must* receive consideration *first* and has the call on our increased output and enlarged plant facilities.

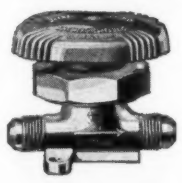
The home front is also vital. As far as possible we will continue to supply this front with parts, fittings and equipment for domestic use.

But we are proud to have many loyal customers who understand that Men and Machines formerly engaged in industrial production are now being used to give *all-out* aid to defense.

THE WEATHERHEAD COMPANY 300 EAST 131st STREET CLEVELAND, OHIO

PACKLESS VALVES

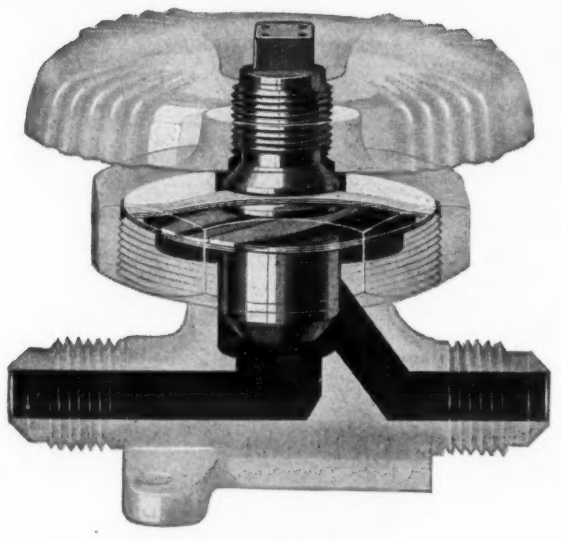
MANUFACTURED IN 3 STYLES



TWO WAY

THREE WAY

ANGLE



Only four working parts

Full capacity for Refrigerant

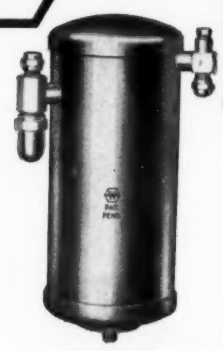
Large Diameter Seat and Stem

Inlet and Outlet connections on same level

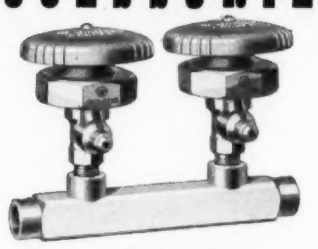
Low overall height

Beryllium Copper Diaphragm, tested through 100,000 on and off cycles without fracture

FITTINGS AND ACCESSORIES

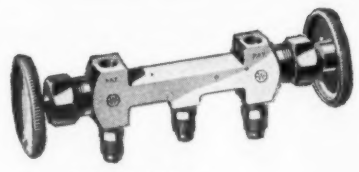


Receiver Tanks

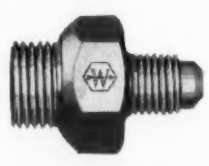


Manifold Assemblies

Strainers

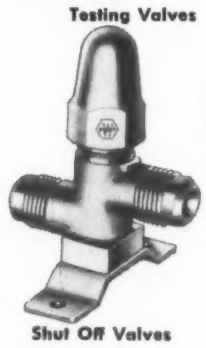


Testing Valves

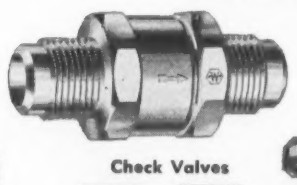


Strainer Connectors

Flare Nuts

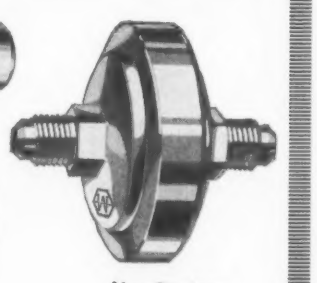


Shut Off Valves



Check Valves

Swivel Unions



Line Strainers

SILICA GEL DRYERS AND FILTERS

BODIES of Weatherhead dryers are made from steel tubing with formed steel ends and corrosion-proof screens hydrogen welded into an integral assembly. All are pressure-tight and tested to 250 pounds of pressure. There's no danger of leakage because no gaskets or soft solder are used.

RECHARGEABLE AND NON-RECHARGEABLE TYPES

Weatherhead rechargeable dryers can be readily refilled, while non-rechargeable dryers are designed for permanent installation after the system has been completely freed from moisture.

Rechargeable dryers have universal connections so that by using the proper S. A. E. reducing unions, ells or tees, the dryer can be used on any size line.

Rechargeable dryers from ⅓ to 7 h. p. rating.

Non-rechargeable dryers from ⅛ to ½ h. p. rating.

WEATHERHEAD

Refrigeration Valves, Fittings and Accessories

What Producers Say About Shipments

Requests Wide Latitude In Specifications

"Marlo has amplified its line chiefly by the addition of the new line of DUC pull-through type unit coolers," declares A. G. Loeffel of the Marlo Coil Co.

"We have also extended in range and sizes our evaporative condensers and industrial coolers to cover the conventional requirements of the industry as to sizes and capacities. Consistent with current conditions, we are allowing our air conditioning equipment to develop to whatever answer priorities and restricted materials compel.

"Under current conditions, we feel it our responsibility to take care of our established existing accounts only and in fairness to them, are not adding on any new accounts as a matter of policy.

"An answer to the shipment problem is almost impossible as it is entirely a matter of securing our raw materials. Absence of an allocation plan for our industry has made materials only available under priorities and there is no general answer we can give as to average time required for fabrication. Obviously, we have no items in our line presently available for immediate shipment and inventories are a thing of the past.

"Customers can expedite deliveries to greatest extent by securing as high a priority as possible and seeing to it that those priority certificates reach us promptly. Further, giving us as much latitude as possible to select coil surface, fan sizes, motor speeds, and mechanical specifications will definitely expedite deliveries.

"It was our intention to display very little at the Show originally, as the key note of the times seems to be to simplify in number and variety of items already developed and available and to withhold new equipment for further research and development during the 'duration' and to be loaded with new, better, and more efficient equipment afterwards."

Customers Must Submit These Priority Forms

"We are not manufacturing any new products for the refrigeration industry in general," says C. V. Gary, sales manager, Henry Valve Co., "although certain special new items will be made.

"We are shortening our line of dehydrators and strainers by eliminating certain catalog numbers for which there is not an extensive demand. We are, of course, doing this in an effort to condense our line and concentrate our production on those dryers and strainers which do meet with a wide sale.

"We are trying to confine our sales as much as possible to established accounts only.

"The outlook for shipments covered by priority is very good. Generally speaking, considering all circumstances we can effect prompt delivery of products needed for national defense. We are unable to determine at this time just what will be the status of shipments of material not covered by priorities.

"We made application to operate under the Production Requirements Plan. Assuming that this will be granted, we shall be able to fill fairly promptly a limited percentage of non-defense orders. Many of our products, including packless valves, dryers, strainers, etc., are available for immediate shipment.

"Customers can do a great deal to expedite deliveries by carefully studying the OPM Conservation Order M-9-c and particularly the 'A' list. We are requesting all of our customers to notify us in particular when they require products for items on the M-9-c 'A' list since we must substitute other materials for copper or copper base alloys in such products.

"We feel also that our customers should make a thorough study of the proper procedure in executing defense orders bearing an 'A' rating, Forms PD-1, PD-3, PD-4, PD-5, notably where the customer's original order is covered by preference rating certificate Form PD-3, and how to order from us depending on whether the order we receive is more or less than $500 net value.

"They should also be familiar with the proper wording of statements and the fact that many of the statements applying to various preference rating orders must be manually signed. Many of our customers do not yet seem to realize that preference rating order P-100 has superseded order P-22.

"We ask also that wherever possible our customers advise us of the industry or end use classification since we must make use of this information in operating under the production requirements plan. The more our customers cooperate with us in giving us information on industry or end use the easier it will be for us to obtain material to fill their orders, especially those which are non-defense.

"We also believe that people should realize that inventories are necessarily limited."

Customers Can Help By Ordering Stock Items

"We are introducing no new products now and our line has been shortened somewhat," declares Ernest C. Wilbur of Dole Refrigerating Co.

"We will not necessarily confine our sales to established accounts only, but expect to have some desirable new customers.

"At present we are able to make reasonably prompt shipments, although the government limitation order will affect our total volume.

"Customers can help us by ordering standard stock items."

Improvements Effected On Ice Cream Unit

"The far-sighted merchant knows that equipment can be bought now for less money than two or three years hence. He also sees inflation constantly lower the value of his dollar. He knows, therefore, that the only solution is to invest in equipment to improve his store and make selling easier. The ice-cream counter freezer today fills this requirement perfectly," says C. G. Erikson of Tuthill Pump Co.

"Tuthill freezers are continued in 1942 without any substitution of materials. The models available are of 1 gallon, 2½ gallon, and 5 gallon sizes. Important improvements include new heat exchanger, new mechanical seal to positively prevent mix leakage past the dasher shaft, and new air ducts on the 1 gallon Freezette for greater efficiency.

"There will be no drive to secure new distributors as the major part of our curtailed production of freezers will be alloted to our present distributors. However, a very few choice territories are open.

"This company is giving its full cooperation to the Defense Program of our country. Tuthill freezers are in service on various naval vessels, army camps, air fields, and veterans hospitals. A large portion of our business is the manufacture of internal gear rotary pumps for use on machine tools for lubricant, hydraulic applications and coolant; on Diesel engines for lubricant and fuel transfer, and for the oil heating industry.

"A more direct defense work is our heavy production of 37 mm shot on prime contract. Another contract for gunner's quadrant has been completed."

Increase In Man Hours Keeps Customers Supplied

"Sunday, Dec. 7, 1941 marked the beginning of a new chapter in the History of American Business—'Business as usual' must be subordinated to the grim task of achieving Total Victory," says an official of Williams Oil-O-Matic Heating Corp.

"Williams Oil-O-Matic Heating Corp. whole-heartedly subscribes to this new conception of American life and business. All of its adaptable equipment has been offered for the duration and complete re-tooling operations are already well underway to meet urgent war needs.

"America's ability to win Total Victory might be said to depend on the health of its people. Without health our soldiers would not be able to fight, our factory men couldn't produce the war materials to fight with. Good health depends upon a balanced diet of good food.

"Transport trucks hauling perishable foods to our Army Camps are refrigerated by Ice-O-Matic gasoline powered truck refrigeration units. Standard Ice-O-Matic Compressors are being used to protect foods in large capacity storage houses in Army Camps. Complete Ice-O-Matic equipment for food storage is installed in a large Navy Arsenal.

"Williams has been able to produce refrigeration equipment for vital civilian as well as army and navy use without disturbing production of war materials. This has been accomplished by increasing the number of man hours worked per week.

"It is the policy of this company to continue manufacturing its product so long as material is available and their use does not interfere with the Total Victory Program.

There Is No Substitute For Experience

"There'll Always Be a---
SALES PROBLEM!

IN WAR as in peace . . . in boom-time as in depression . . . there'll always be a sales problem. There'll always be a demand for foresighted merchandising.

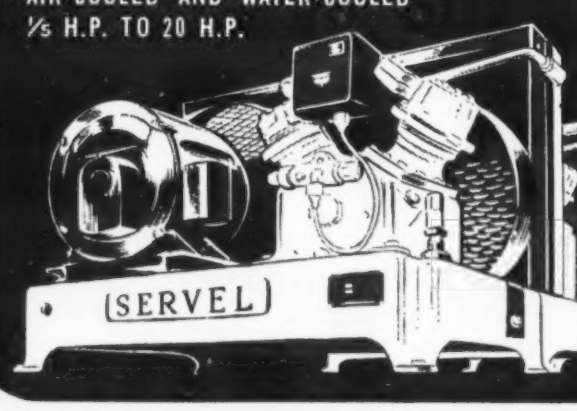
Today's unusual sales situation finds Servel distributors and "allied" manufacturers well fortified . . . with *a product* that fills essential needs . . . and *a co-operative merchandising program* that is geared to the new emergency conditions.

Many months ago, Servel's research engineers tackled the problem of conserving strategic materials. As a result, Servel's 1942 program measures up to traditional quality standards and carries its full share of the war load. This foresighted planning has made it possible for Servel to maintain deliveries for essential civilian needs as well as for direct defense needs.

To help customers divert their efforts into new wartime channels, Servel has developed a concrete sales program in which the factory lends *real co-operation* and *realistic guidance.*

If you are a Servel distributor or "allied" manufacturer, be sure to find out about this *new co-operative merchandising plan.* Write today to Servel, Inc., Electric Refrigeration & Air Conditioning Division, Evansville, Indiana.

OVER 80 STANDARD MODELS—
AIR-COOLED AND WATER-COOLED
⅕ H.P. TO 20 H.P.



SERVEL
COMMERCIAL REFRIGERATION
and
AIR CONDITIONING

FOR ANOTHER YEAR of PROGRESS

"DAY & NIGHT" pledges its full cooperation in the task that lies ahead for the Refrigeration Industry as it continues to play an important part in helping to win the war. To that end, every possible effort will be made to fill our customers' needs as rapidly as conditions permit. Let's all pull together for a quick and lasting victory!

Above: U. S. Navy Cooler. Meets Navy Specifications. Other models made to Army Specifications. Right: Water coolers for self-contained installation.

For over a decade "Day & Night" Storage Type Water and Beverage Coolers have played an important part in the development of modern Refrigeration and Air Conditioning. They are known and used from coast to coast.

Left: Normal Suction Pressure Storage Tank Coolers in all sizes. Capacities from 2 to 105 gallons. Below: High Suction Pressure Storage Tank Coolers in capacities from 25 to 210 gallons.

TYPICAL APPLICATIONS OF "DAY & NIGHT" STORAGE TYPE COOLERS

Army Barracks—Naval Stations—Airports—Naval Vessels—Shipyards—Defense Industries—Food Industries—Chemical Processes—Petroleum Industry—Bottling Industry—For drinking water—jacket water—processing water—air conditioning—temperature control.

SOLD THROUGH THE ESTABLISHED REFRIGERATION TRADE

DAY AND NIGHT
COOLER DIVISION
DAY AND NIGHT MANUFACTURING CO.
2320 EAST EIGHTH STREET • LOS ANGELES, CALIFORNIA
FACTORY REPRESENTATIVES
NEW YORK — A. C. Homeyer, 682 Broadway
CHICAGO — Marc Shantz, 565 Washington Blvd.
DALLAS — Leo J. Freitas, 4408 Stanhope St.
DECATUR, GA. — J. E. Parker, 228 Second St.
Warehouse Stocks at Convenient Shipping Points

Manufacturers Make Statements

'Will Ship To Customers As Long as Possible'

"We have developed several new products to fit in with the demands of the defense program, including a line of ceiling mounted double-charge unit coolers for reach-in boxes which is about ready to go into production," says C. A. MacArthur of Bush Mfg. Co. "We will have a complete line of floor type blower units to be announced shortly.

"All our lines are being very carefully checked and we are eliminating some of the units which might be classified as rather non-essential but are retaining complete coverage of products for all classes of application. We are eliminating wherever possible that which may be classed as a 'gadget' or a feature which has no practical value to the job except for appearance.

"In other words, we are making every possible effort to make the available metal as near 100% heat transfer surface as possible.

"We at Bush have held firmly to the theory that the preservation of foods is a very vital element in the defense program. This applies not only to military but the civilian army as well. We have done our utmost to fill all orders placed with us and shall continue to do so as long as we possible can. Although we have had no seasonal drop in business, through improved production methods we have been able to speed up our deliveries and in most cases are very nearly up-to-date.

"Except for occasional delays on receipt of materials, we are maintaining our shipping schedules very well and hope to continue. We urge all customers to give all manufacturers as long as possible on delivery and to realize that where there are delays it is not the fault of the manufacturer in most cases but due to conditions beyond his control."

Plastic Is Substitute For Fan Blade Metal

"The use of sheet plastic as a blade material for quiet propeller fan blades was to have been demonstrated by the Torrington Mfg. Co. at industrial shows this month," says officials of the company.

"Torrington engineers were studying the use of plastics as an alternate material for fan blades even before the current restrictions on aluminum and other materials became effective.

"The qualities that have made aluminum so desirable for fan blades are also found in this sheet plastic. It is light weight, non-resonant, and non-corrosive. However, officials point out that this is merely a temporary expedient for the emergency. The material is not ideal, but will serve all general purposes.

"It is stated that the new blades cannot be formed, but are given some curvature by the use of a specially formed spider. Performance is nearly identical to that of the steel and aluminum Torrington blades which are still being produced. Sizes available are limited to 10, 12, 14; and 16-inch standard 4-blade series at present.

"Severe tests were run in the company's laboratory, including 80,000 stops and starts at the rate of 13 per minute, with the blade attaining a top speed of 2,400 r.p.m.; 20½ hours continuous operation at speeds from 2,500 to 5,700 r.p.m.; and 60 hours intermittent operation in a temperature of 178°."

'Will Make War Orders, Essential Equipment'

"As of Dec. 8, 1941 the Carrier Corp. made a broad statement of policy to all of its employes, namely, that we were to confine our efforts to the manufacture and distribution of products on war orders, and to the supplying of equipment essential to industries serving the prosecution of war and the goal of complete victory," says E. T. Murphy, vice president.

"The voicing of this policy caused us to make a review to check as to whether or not our regular line of products would sufficiently absorb our capacity during 168 hours of each week. It is the purpose of this organization to so serve and, if the demand is insufficient, to take on such extraneous work to our regular line of business as may be required.

"We also reviewed our defense efforts during 1941 and found that Carrier products were essential to a long list of direct war requirements and to industries serving war. A few examples are application of refrigeration and air conditioning to munitions manufacturing, airplane engines, airplane assemblies, food preservation, cantonments, Naval bases, Army air corps, accuracy of bomb sights, parachute drying, Air Corps photo developments, gas masks, food carriers, bomb-proof message centers—and in the contributory war industries Neoprene, Nylon, chlorine, blast furnaces, precision instruments, copper mines, photographic film, pharmaceutical products, bullet-proof glass, lenses, magnetos, etc.

"Also, during the year we took on a heavy program of refrigeration for the Navy and Martime Commission and an extraneous job manufacturing parts for gun rammers.

"To summarize, we are 'all out' to serve the war needs and the fight for victory, and feel that our industry is extremely fortunate in being of important service to the armed forces.

"It is obvious that with this tremendous step-up in effort, changing requirements, and the necessity for substitutions for critical materials, the laboratories will produce many new and interesting products and their ingenuity will be taxed to this end."

'Some Items Discontinued, Rated Orders Preferred'

"We are not offering any new products for commercial refrigeration for 1942," says L. H. Weigel of the refrigeration sales division of Fedders Mfg. Co. "We have discontinued certain items from our line for the duration—these items being thermostatic, automatic, and constant pressure valves—both high capacity and regular type. We will also discontinue the Fed-R-4-Way unit coolers at the depletion of our present stock.

"We are, of course, giving preference to our old established accounts where it becomes a question of doling out copper and brass to stay within the allotment in accordance with OPM Order M-9-c. We have, however, had very little trouble along these lines so far, and in most cases, we have been in a position to fulfill about 95% of all orders received, including new accounts. However, you realize we cannot forecast what 1942 will bring.

"We are making shipments every day of finned coils, blower coils, condensers, and ice cube maker evaporators. We do not stock finned coils in view of the vast spread of sizes available, but we have been in a position, and we are able at the present time, to make shipments within three or four days after receipt of order on special and standard catalog size finned coils. We have a stock of about 2,500 unit coolers at the present time which are available for immediate shipment; however, on a small percentage of these we are awaiting receipt of motors from our supplier, and on these, we naturally cannot effect immediate delivery. We also have a small stock of condensers and ice cube maker evaporators which are available for immediate sale.

"What can customers do to expedite deliveries?—The only way we can answer this is 'keep the priority certificates coming in wherever possible.' Regardless of the rating extended on the certificate, it is necessary that we have certificates wherever possible inasmuch as this means one more unit cooler that can be made up for civilian requirements.

"Naturally, the customer who is in a position to furnish a certificate receives preference over civilian orders; however, in cases where we have the material in stock, this naturally does not make much difference as far as shipping date is concerned, but, as mentioned above, it is essential for the customer to keep priorities flowing in inasmuch as it looks as though the allotment for civilian requirements will become less and less."

(Continued on Page 14)

Our Problem ...and Yours

★ Approximately 95% of our total productive capacity is now devoted to the fabrication of priority orders. We are doing our utmost to provide our regular customers with materials for essential civilian uses within the remainder of our 24 hour, 7 day week production schedule.

Both you and ourselves must operate on a "minimum practical working inventory." This means that we have not had the opportunity of building an appreciable stock.

Conservation order M-9-C limits the total amount of civilian production requiring either copper or copper base alloys.

The actual acute shortage of raw materials is a decidedly limiting factor in the amount of material available to us for fabricating essential civilian requirements (non essential products have already been entirely eliminated).

Advance planning and regular production schedules have practically disappeared. The manufacture of any order without a preference rating is very much a "catch as catch can" procedure. Our Government has first claim on the use of our machines and our man power. Therefore, although we may be able to secure materials and may be permitted, under the existing restriction orders, to produce your goods, we may not have the necessary machines available to do so, because these machines are, by far the greatest part of the time, continuously on production of war materials.

We Americans, no matter in what walk of life, realize that armament work must come first. IT MUST TAKE PRECEDENCE OVER EVERYTHING ELSE IF FOR NO OTHER REASON THAN THIS—THAT WE MAY PRESERVE FOR THE FUTURE THOSE VERY BUSINESSES OF WHICH WE ARE NOW TEMPORARILY DEPRIVED. If we fail, everything is lost—our businesses, our freedoms and our democratic way of life.

To the extent we are permitted and to the machine capacity we have available or can procure, we shall continue to the very utmost of our ability, to produce standard essentials for our customers and the Refrigeration Trade.

MUELLER BRASS CO. • PORT HURON, MICHIGAN

Word From the Manufacturer

'There Will Always Be . . . A Sales Problem'

"There will always be a—Sales Problem," asserts E. A. Terhune, sales manager, electric refrigeration and air conditioning division, Servel, Inc.

"In these times when everyone is so absorbed in defense orders, materials, priorities, etc., they don't seem to remember that sales organizations must live to protect the future of this and other industries, that salesmen as such cannot do their best work by trying to operate the production or research end of a business, and that the more acute the restrictions and priorities become, the more there is of a real sales problem.

"The problem may not be that of how to get new accounts on the books, but it certainly is one involving how to keep a sales organization together, how to build properly in these 'fat' years for the 'lean' ones to follow, and how to make the proper readjustments in sales methods, policies, and tactics to get the kind of business that it is necessary these days to have to stay in business, to hold a sales organization together, and to function effectively in that part of the market involving refrigeration for essential civilian needs as well as for defense.

"We are calling in our field men next week to launch a new campaign cooperatively tying in our dealers, distributors, and allied manufacturers with our own efforts and geared to new war selling conditions and solution of new sales problems arising."

'Study the Priority System & Help Us'

Midwest Mfg. Co., manufacturer of commercial refrigerators, announces that it still is making prompt shipment of all models, and is continuing to accept non-defense business "as long as we can."

"At the present time, we are making prompt shipment of all models," the company says. "We have a substantial stock on hand and sufficient materials to last us for at least a few months yet. How long this condition will exist, we don't know. Naturally, materials for our Armed Forces come first and in our plant, as in every American plant, production for our Armed Forces takes precedence over anything else.

"We are still accepting non-defense business. We will continue to accept non-defense business as long as we can. However, we must have a large percentage of priority business to enable us to get materials. We are depending on you as one of our distributors to get as much priority business for us as you can, and to furnish us priorities whenever you can. This may cause you a little extra trouble, but is to your advantage as well as our own. Study the priority system. If in doubt, write us or better yet write your nearest OPM office."

'Will Meet Conditions As They Come'

"We are planning to continue our activities to meet the conditions as they are and as they come," declares G. E. Graff, sales manager, Ranco, Inc., controls manufacturer.

"Our new bulletin lists only the controls and parts which Ranco will attempt to stock and thus make available to contracted Ranco jobbers. Omission and substitutions from previous catalogs are noted in a sticker attached to the front of the catalog.

"While our plant is largely devoted to defense work we expect to maintain our percentage of refrigeration work as far as it is permissible."

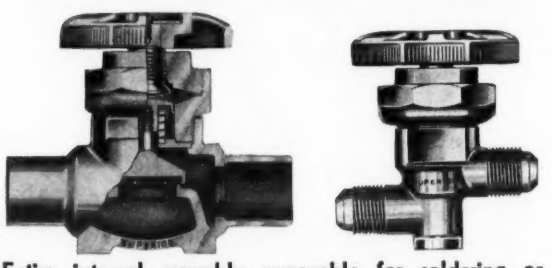
Superior PRODUCTS ★ ★ ★

★ ★ ★ FOR YOUR Defense JOBS

Increased refrigerated space for the accelerated production of perishable foods places a heavy responsibility upon the refrigeration industry. Shortage of metals condemns waste and inefficiency. Do your part to conserve materials. Design to produce more refrigeration per watt hour. Select equipment which requires a minimum of service. Specify SUPERIOR — the quality buy-word of the industry.

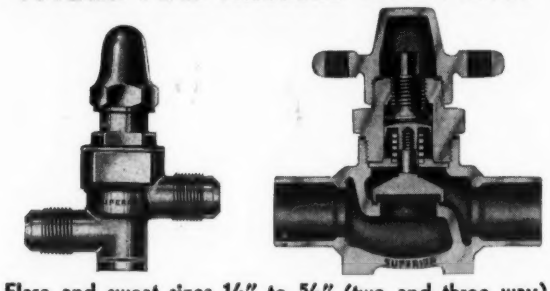
CUT

DIAPHRAGM PACKLESS VALVES



Entire internal assembly removable for soldering or inspection. Equipped with famous pressure cup below diaphragm. Two and three way. Flare sizes 1/4" to 3/4"; Sweat sizes 1/4" to 7/8".

PACKED AND PRESSURE CUP VALVES

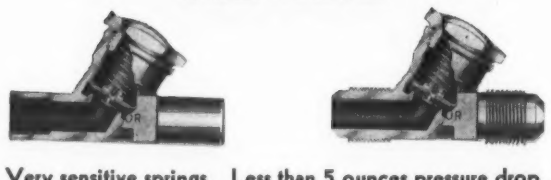


Flare and sweat sizes 1/4" to 5/8" (two and three way) have hex seal cap. Sweat sizes 1/4" to 2 1/8" (globe) have wing nut seal cap. Internal assembly (all sizes) removable for sweating to valve body.

★ Refrigeration is Vitally Essential to Our National Defense Efforts ★

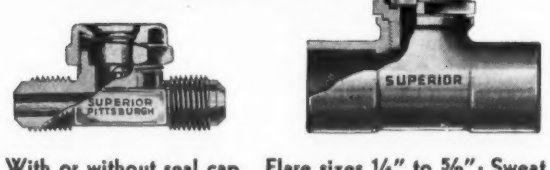
OUT AND SAVE

CHECK VALVES



Very sensitive springs. Less than 5 ounces pressure drop. Positively will not chatter or hum. All internal parts easily removable for sweating or inspection. Sizes 1/4" to 3/4" Flare; 1/4" to 7/8" Sweat.

LIQUID INDICATORS

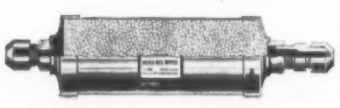


With or without seal cap. Flare sizes 1/4" to 5/8"; Sweat sizes 1/4" to 1 3/8". On 1/2" Sweat to 1 3/8" entire upper assembly may be removed as a unit to facilitate soldering of refrigerant lines to connections.

★ Refrigeration-Food Preservation and National Defense are Synonomous ★

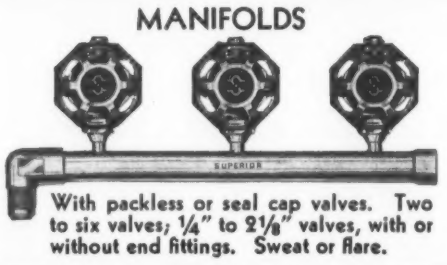
FOR FUTURE

DEHYDRATORS



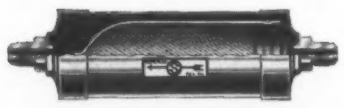
Silica-Gel or Activated Alumina. Refillable and non-refillable. 1/4" to 5/8"; 1/4 to 5 H.P.; 2 to 60 cubic inches.

MANIFOLDS



With packless or seal cap valves. Two to six valves; 1/4" to 2 1/8" valves, with or without end fittings. Sweat or flare.

FILTERS

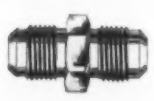


Highly efficient sack type filter. Sizes 1/4" SAE to 5/8" SAE. One to five horsepower.

★ Don't take chances with the Nation's Health -- do the best job possible ★

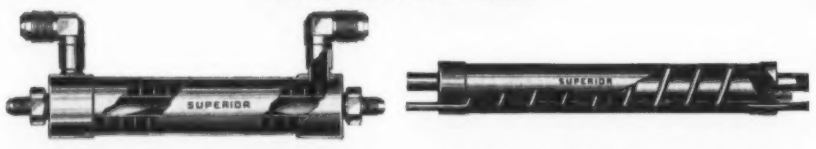
REFERENCE

FITTINGS



Unions, adapters, elbows, tees, crosses, caps, etc. 1/8" through 1".

HEAT EXCHANGERS



Unique design gives highest capacity per unit size. Sweat or flare connections. 4200 to 9725 BTU per hour.

Combination Heat Exchanger and Accumulator. From one to ten tons. Especially recommended for low temperature installations.

FLARE NUTS

Brass and steel. Long and frost proof. Forged and bar stock.

For complete details — see your Jobber or write for catalog

SUPERIOR VALVE & FITTINGS CO.

★ PITTSBURGH ★ PENNSYLVANIA ★

They Gave Their Time, Thought & Money . . .

C. H. BENSON
(Chairman of the Show)

E. A. VALLEE
(President of Rema)

J. W. HATCH

W. D. KEEFE

R. W. LUSCOMBE

R. M. VAN VLEET

* * *

These men are members of the refrigeration equipment and supplies industry who worked so diligently in the interests of the All-Industry Refrigeration & Air Conditioning Exhibition, and who unhesitatingly canceled the Show, and literally threw months of hard thought and effort out of the window, immediately after the United States became engaged in the war.

It is only fitting that these men be given recognition in this "Show-in-Print" issue for the time and effort that they devoted to a great industry cooperative enterprise.

RIGIDBILT

UNIT COOLERS

FIN COILS

MODULATORS

A NAME THAT STANDS FOR PERFECTION IN LOW-SIDE EQUIPMENT

IF IT'S RIGIDBILT IT'S BETTER BUILT

IF YOUR JOBBER CAN'T SUPPLY YOU WRITE DIRECT

MANUFACTURERS FIN COIL CO.
2505 SO. PULASKI RD. CHICAGO

Priority Procedure

Manufacturer's Instructions Afford Up-to-date Data On Customer's Duties In Providing Correct Forms

One of the manufacturers in the refrigeration parts, equipment, and supplies field has issued a recent bulletin to his customers instructing them on how they can best help him with the proper priority ratings and information. Those familiar with current priority regulations declare it is an excellent representation of the situation as it now stands.

Says the bulletin:

In order to comply with government requirements certain information must be furnished on your orders so that we can obtain raw material and effect shipment of the items you require.

Compliance with OPM Copper Conservation Order M-9-C

The following statement must appear on all of your orders: "this order is in compliance with OPM Order M-9-C as revised December, 1941," where the order involves copper and brass products.

Any orders for these affected products, and which are not for usage mentioned in paragraphs 1 to 6 under heading "b" (General exception) of M-9-C must specifically state the appliance in order that we can supply products which do not contain any copper or copper base alloys.

Your Defense Orders Bearing an "A" Rating

In sending us orders bearing an "A" priority rating you must follow one of these procedures:

(a) Execute for us a preference rating certificate Form PD-1, PD-3, PD-4, or PD-5.

(b) If your customer's order is covered by a preference rating certificate Form PD-3 and your order to us is for products less than $500.00 net value we can accept it and ship when possible without a priority certificate providing that the following statement, manually signed, appears on your order and a copy of the order so executed is sent to the supply arm or bureau of the Army or Navy initiating the prime contract and another copy to the Director of Priorities, Washington, D. C.

"I hereby certify (a) that the material specified in this Certificate is essential for completion of the contract(s) cited herein, (b) that the specified quantities are not greater than required for said contract(s), and (c) that the specified Delivery date(s) in the installment Delivery Schedule on the face of this Certificate (or appended hereto) are not earlier than actually necessary for completion on time of said contract(s)." (Authorized signature.)

(c) If your order to us is covered by preference rating certificate Form PD-3 and is for $500.00 or more net value, pending receipt of the preference rating certificate, we shall accept and ship, when possible, providing a properly notarized statement on or attached to your order contains the following information:

(1) Priority Rating
(2) Government Contract Number
(3) Office of Origin
(4) Serial Number of Preference Rating Certificate.

(d) You understand that your orders accompanied by Form PD-25-D will carry only an A-10 rating regardless of the rating indicated on the form. Therefore, we ask that in all possible instances in order to assure that your order is given its proper priority standing that instead of using Form PD-25-D you follow one of the above procedures mentioned in conjunction with Forms PD-1, PD-3, PD-4, or JD-5.

(e) As you know, preference rating Order P-100 has superseded Order P-22. Orders for material covered by preference rating Order P-100 should bear the following statement, manually signed: "Material for maintenance, repair, or operating supplies—Rating A-10 under Preference Rating Order P-100, with the terms of which I am familiar." (Authorized signature.)

Definite Shipping Dates on Defense Orders

All of your defense orders regardless of whether they bear an "A" or "B" priority rating must specify definite shipping dates.

Other Classifications

Any orders on which a priority rating is not stated will be treated as unrated orders and will be shipped if and when possible.

Separate Orders for Various Priority Ratings and Non-Defense Usage

We ask that in all possible instances you issue to us separate orders for each priority rating or material for non-defense use.

Inventories

Please bear in mind that any orders you place are to be regarded as for a minimum working inventory (Priorities Regulation No. 1—Amended December, 1941).

Industry or End Use Classification

Inasmuch as we intend to operate under the Production Requirements Plan, will you kindly cooperate with us and indicate the industry or end use of the products on your orders employing a code number from the attached list showing use of classifications for copper and copper alloys. We need this information in order to fill out our report under the Production Requirements Plan regardless of whether copper or copper alloys are employed in the product.

You understand that the Production Requirements Plan is the only practical solution for our obtaining material in most instances for use in manufacturing products for non-defense orders. In any event, the amount of our production which can be furnished for non-defense requirements is limited, and, therefore, we solicit your earnest cooperation in furnishing us with all available information on your orders.

Unless you supply us with adequate information as outlined above, we cannot enter your orders for production and shipment.

Materials For Vending Machines Curtailed

WASHINGTON, D. C.—Use of "critical materials" in popular vending machines which dispense cigarettes, food, candy, nuts, chewing gum, and beverages has been curtailed sharply by order of Donald M. Nelson, director of priorities, but the restrictions do not cover United States postage stamp machines or automatic restaurants—"automats."

During January iron and steel consumption has been ordered cut 25%, using as a base period the monthly average consumption for the 12 months ended June 30, 1941. A 50% cut becomes effective in February.

Alnico magnets, which comprise the slug-rejector mechanism, are also cut 25% and 50%; "prohibited metals," including aluminum, stainless steel, chromium, copper, lead, nickel, tin, and copper base alloys, are curtailed 100%, with the exception of limited amounts allotted for the alnico magnets, refrigeration units, and electricity conduction.

Metals other than those on the "prohibited list," chiefly zinc, used in coin mechanisms, are curtailed 50% in January and 75% in February and thereafter.

About 3,000 workers are employed in the industry, which centers in the Chicago area, OPM says.

Philadelphia Electrical Group Elects Officers

PHILADELPHIA — A. L. Hallstrom, vice president of Graybar Electric Co., was elected president of the Electrical Association of Philadelphia for the fourth successive term at the recent meeting of the organization's board of governors.

Other officers of the association are: vice president, Howard L. Miller, president of Utilities Engineering Co.; treasurer, Philip H. Ward, president of Ward Electric Co.; secretary, Robert J. Moran, chief of the electrical department, Middle Department Rating Association.

ANY *Quick-Frozen* SPINACH TODAY?

Thermopane SHOWS HER THE ANSWER

● *SHOPPERS DON'T BUY WHAT THEY CAN'T SEE. Blind, glassless cases don't help sales . . . and neither do those whose ordinary "windows" fog up with condensation.*

Solution to Fog Problem: Thermopane—the new glass unit perfected by Libbey·Owens·Ford—eliminates condensation between panes. The entrapped air is first dehydrated and then hermetically sealed. The glass always stays clear without further extraction of moisture.

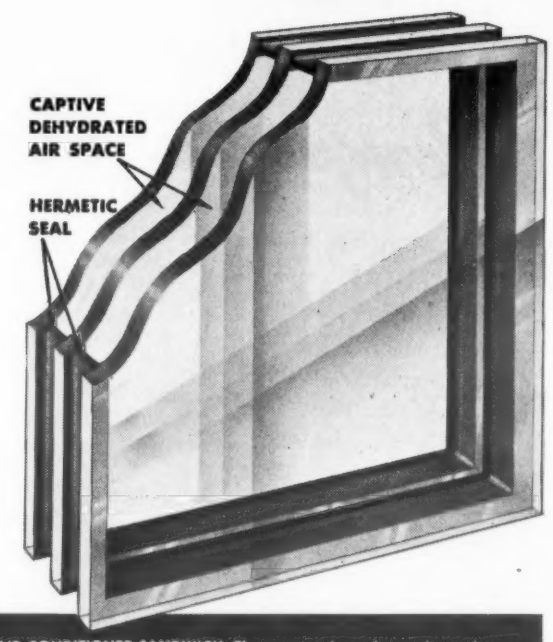
Conducts Less Heat: The air is not only dry but also still. There is no breathing action to reduce the insulating value of the air space. A triple Thermopane unit is practically equal to a twelve-inch brick wall in insulating effectiveness.

Made to See Through: Thermopane is made of Libbey·Owens·Ford Polished Plate Glass, noted for its extra clarity and greater freedom from flaws. Each pane is carefully cleaned to assure spotless, sparkling inside surfaces; and the airtight seal prevents even the finest dust from seeping in.

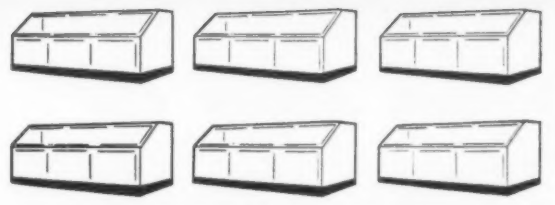
Cuts Labor Cost: Manufacturers who are using Thermopane units are saving as much as 83% on former labor costs for glazing. This saving, plus the fact that Thermopane improves cabinet quality, explains why it is rapidly replacing the old system of glazing commercial refrigerators.

GET COMPLETE INFORMATION

For a demonstration of Thermopane and complete technical information regarding it, write Libbey·Owens·Ford Glass Company, 1329 Nicholas Building, Toledo, Ohio.



AN AIR-CONDITIONED SANDWICH. Thermopane is a glass unit consisting of two, three or more panes of clear glass, separated by ¼ or ½ inch of dehydrated air, and sealed together around the edges by an airtight metal seal. Shipped to refrigerator manufacturers ready to install.



6 CASES CAN BE GLAZED IN THE TIME IT TAKES TO DO 1 THE OLD WAY

Where it formerly took six hours to glaze a cabinet in a certain plant, it now takes but one with Thermopane Units. Much time is saved by the elimination of cleaning and polishing between panes. Thermopane is supplied ready to install.

LIBBEY·OWENS·FORD *Thermopane*

"Better Seeing Means Better Selling"

'This World War Is Rapidly Becoming an Air Conditioned War'

Air Treatment Speeds Up Production Of Many Vital War Materials

NEW YORK CITY — "World War II is becoming an air conditioned war," declares a recent issue of "Time" magazine.

"This startling fact was underscored when OPM materials chief William Batt told air conditioning makers they could get top-rung priorities on all blast-furnace installations. In fact, steel companies will be urged to air condition, can have RFC money to pay for the jobs. Reason: air conditioned furnaces produce more iron.

"Two years ago Carrier Corp. sold Alabama's Woodward Iron its first blast-furnace installation. Result, says Woodward, was up to a 20% increase in pig-iron output, a 13% saving in coke per ton of iron. A new Jones & Laughlin installation in Pennsylvania hiked output 16-18% with a 4% coke saving.

"Woodward conditioned its furnaces because it figured perfect moisture control in the air blast would maintain uniform operations and uniform iron quality. It did. But OPM's chief aim is speed. Present pig iron capacity is 56,500,000 tons and a 10% increase (via more furnaces) would take 12 to 18 months, cost about $115,000,000. Put to work now, air conditioners could do the job in five to eight months.

". . . war's demand for fast precision manufacturing was tailor-made for air conditioning. Temperature changes in the average factory (often 15° in 24 hours) can alter delicate gauges and machines several ten-thousandths of an inch—too much. Apart from this, conditioning keeps out dust and dirt, prevents sweating hands from etching, tarnishing, or rusting highly polished metal surfaces. Munitions makers rushed to sign up.

"Almost all aircraft plants are partly or completely air conditioned. At Wright Aeronautical's huge Lockland, Ohio plant, a 6,000-ton conditioner helps keep parts of the 1,700-hp. radial engines perfect to the closest tolerances. At Dallas, North American Aviation uses artificial weather in bomber assembly. Wright Field uses refrigeration units to test engines and planes at —67° F.; decompressors to simulate flying conditions at 40,000 feet.

"William Batt's own SKF Industries controls the weather in its ball-bearing plants; Chevrolet has units in its machine-gun plant; Alabama's Rust Engineering has a 1,200-ton machine in its shell-loading plant.

"All submarines use air conditioners and almost all naval shipbuilders cram conditioners into the tight hulls of destroyers, the sealed gun-turret rooms of other craft. Tanks may soon be air conditioned, if they are intended for desert or arctic warfare."

Margaret Ingels, engineering editor of Carrier Corp., lists many other applications of air conditioning in direct defense work in her "annual air conditioning survey."

The sharp upturn of the industrial installation curve in 1941 shows that air conditioning is one of the "tools" employed for defense production. How this tool is used may be learned by grouping the installations of air conditioning and its auxiliary equipment into four classes.

INSTALLATIONS MADE DIRECT FOR THE GOVERNMENT—benefitting the men in service or supplies for the service men.

INSTALLATIONS MADE FOR COMPANIES SUPPLYING EQUIPMENT TO THE GOVERNMENT.

INSTALLATIONS MADE FOR COMPANIES PROVIDING MATERIALS USED IN EQUIPMENT FOR THE GOVERNMENT.

INSTALLATIONS MAINLY FOR CIVILIAN USES.

INSTALLATIONS MADE DIRECT FOR THE GOVERNMENT

Because of the nature of the installations and Government restrictions on publishing information about specific applications, the names of the customers and locations of the equipment are omitted. Why air conditioning, or the control of temperature or relative humidity, is needed is evident by the uses made of the equipment in the various plants.

AMMUNITIONS

Bombs are stored in concrete vaults in which the air is dehydrated to prevent condensation forming on walls and dripping on the shells. Similar vaults are also used for powder storage. Dehydration is a function of air conditioning equipment.

Fuse loading rooms are air conditioned to assure accurate timing through uniformity of the powder. Complete year around air conditioning with mechanical refrigeration is used for fuse loading rooms.

Percussion element loading rooms are held at constant temperature and relative humidity by air conditioning equipment to obtain a uniform product and also to prevent perspiration from the workers' hands marring metal surfaces.

Powder (black) is dried under controlled conditions of temperature and humidity. Production schedules can thus be carried through with a fixed drying time. Air circulation is held at the rate required for drying, and yet not to disturb the powder on the drying trays. The powder dried under controlled conditions will flow and compress properly when loaded into primers and percussion elements.

Powder (smokeless) is dried by heated air delivered through specially designed trucks to obtain uniform heating and drying of the powder. The drying rates are important to production schedules. Fans and heating coils are parts of the air conditioning equipment which have been highly developed to meet air conditioning specifications.

Primers are washed and then dried in high temperature air. Drying removes all surface moisture from the metallic cups to prevent moistening of the detonating powder or other materials used for loading the primers. After loading, the primers are again dried to prevent excess moisture in the powder. The high efficiency of the drying equipment is a result of development in air conditioning research.

Primers (artillery) are dried with warm air and then cooled in special cabinets to facilitate handling and speed up production. These large primers use a bitumastic paint which must be dried in the warm section and then set in the cold section. The primers are handled on specially designed trucks.

Solvents used in the manufacture of smokeless powders are reclaimed to provide great savings in the manufacture of munitions. Recovery systems require special ductwork of heavy construction and carefully welded joints requiring craftsmanship trained in the air conditioning industry.

Tetryl requires a nitration or sulphation process during which temperatures of the materials must be carefully regulated. These processes generate heat which must be removed by jacket water which is in turn cooled by mechanical refrigerating equipment. The temperature is very critical. If it is allowed to exceed a certain level, the mixture becomes extremely hazardous. Chilling water to specified temperature and controlling temperature levels of liquids is an art developed by air conditioning engineers.

Tracer composition is blended, mixed, and stored in conditioned air. The tracer powder is pelleted into small tablets by automatic machines, and must be correct for proper flow of material. The handling of tracer ammunition is extremely hazardous. Air conditioning prevents perspiration on the hands of the workers so that handling metal parts does not cause the surfaces to be moist thereby collecting small traces of powder that might cause explosions. Temperature and humidity of the air are controlled with unitary air handling equipment and mechanical refrigeration.

CAMPS

Food Storage: Low temperature air conditioning is used to preserve food for army camps, navy and air bases, and government cantonments. Meats, fruits, vegetables, and milk are stored in large warehouses and in service boxes to supply mess halls.

Efficiency and Comfort: To combat the enervating effect of extreme heat, headquarters of some camps and government buildings housing army and navy officers are air conditioned to maintain maximum efficiency and augment the health of the staff.

Many barracks are heated with warmed circulated air supplied by apparatus utilizing design features perfected in air conditioning equipment.

Fur Storage: Low temperature air conditioning is employed to preserve fur coats that are part of the equipment supplied airplane pilots. The application of fur coat storage is now adapted to the defense program.

Parachute Storage: Long recognized as a necessity in textile mills, air conditioning is now used to preserve the silks of parachutes while they are in storage, preventing mildew and other deteriorating effects when this very important "equipment" is not in use.

Photographic Laboratory: Chilled water from refrigerating units used in conditioning air is furnished to camp laboratories where photographic films are developed; the water temperature is kept at the degree desired for development of negatives.

SHIPS

The Navy, including many classes of boats, from destroyers to private yachts turned over to the Government, are equipped with air conditioning equipment to keep foods fresh, preserve records, and assure efficient working weather when on board.

MISCELLANEOUS

Test laboratories for medical supplies kept at a U. S. Army depot are air conditioned to control test conditions. Army hospitals are equipped with low temperature air conditioning to preserve food and medicine. Carburetor test room, radio tower, storage room for submarine storage batteries, film, and paper storage are all independent of variations in outdoor weather as air conditioning is used to control the temperature and relative humidity of these spaces.

INSTALLATIONS MADE FOR COMPANIES WHICH SUPPLY EQUIPMENT TO THE GOVERNMENT

The companies which have direct contracts with the government are large users of air conditioning and refrigeration equipment. The products of such companies are of primary importance in the Defense Program.

AIRCRAFT

Among the many companies which use air conditioning, mechanical refrigeration, or both, in making airplanes or airplane parts, are the plants listed below:

A. C. Spark Plug Plant of Flint, Mich.—installed air conditioning with a 500-ton capacity mechanical refrigeration machine for the factory, laboratory, and factory offices of its windowless building.

Bendix Aviation Corp., Towson, Md.—equipped its plant with a 450-ton capacity centrifugal refrigerating machine to supply chilled water for air conditioning manufacturing spaces and factory offices and cafeteria.

Aero Products Division of General Motors, Vandalia, Ohio—contracted in 1941 to condition 240,000 c.f.m. of air, using 450 tons of centrifugal refrigeration in the manufacturing spaces, offices, and cafeteria.

Gruman Aircraft Co. of Bethpage, Long Island, N. Y.—made a large installation of air conditioning and refrigeration equipment in 1940. In 1941 considerable auxiliary equipment was added to serve the paint booth in the paint shop and parts paint shop and to supply exhaust to the kitchen.

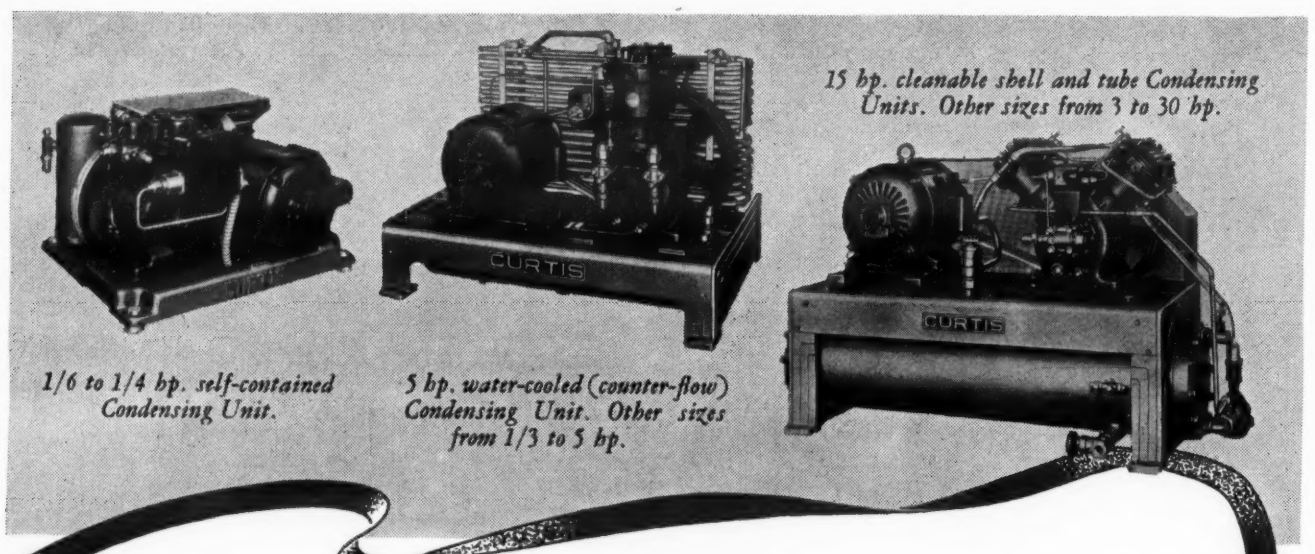
Studebaker Corp.—added refrigeration for supplying chilled water for use in air conditioning apparatus serving two plants. For the South Bend, Ind. building there are four centrifugal machines; for Fort Wayne, Ind. three similar machines providing a total of 4,600 tons and 1,425 tons of cooling respectively for the plants.

Wright Aeronautical Corp.—is installing five centrifugal refrigerating machines to supply 6,000 tons of cooling effect to serve the air conditioning equipment for factory, offices, cafeteria, and engineering department in the plant at Lockland, Ohio.

MATERIALS FOR COMPANIES WHICH SUPPLY EQUIPMENT TO THE GOVERNMENT

The demand for materials to meet

(Concluded on Page 17, Column 1)


15 hp. cleanable shell and tube Condensing Units. Other sizes from 3 to 30 hp.
1/6 to 1/4 hp. self-contained Condensing Unit.
5 hp. water-cooled (counter-flow) Condensing Unit. Other sizes from 1/3 to 5 hp.
CURTIS
CURTIS

You Can Sell the ENTIRE FIELD of Commercial Refrigeration and Air Conditioning with the

Complete CURTIS LINE

In the field of commercial refrigeration, Curtis manufactures 45 air-cooled condensing units from 1/6 to 5 hp. and 47 water-cooled units from 1/3 to 30 hp., for both Freon and Methyl Chloride. Special models for ice cream, frozen food cabinets, and for the dairy industry.

Curtis Packaged Air Conditioning Units are ideal for every type of application—in five sizes from 3 to 15 tons capacity. These units require only water and electrical connections to install—cool, dehumidify, circulate, and filter the air—eliminate costly installation expense and are adaptable for heating if desired.

Curtis Advanced Design Features Include:

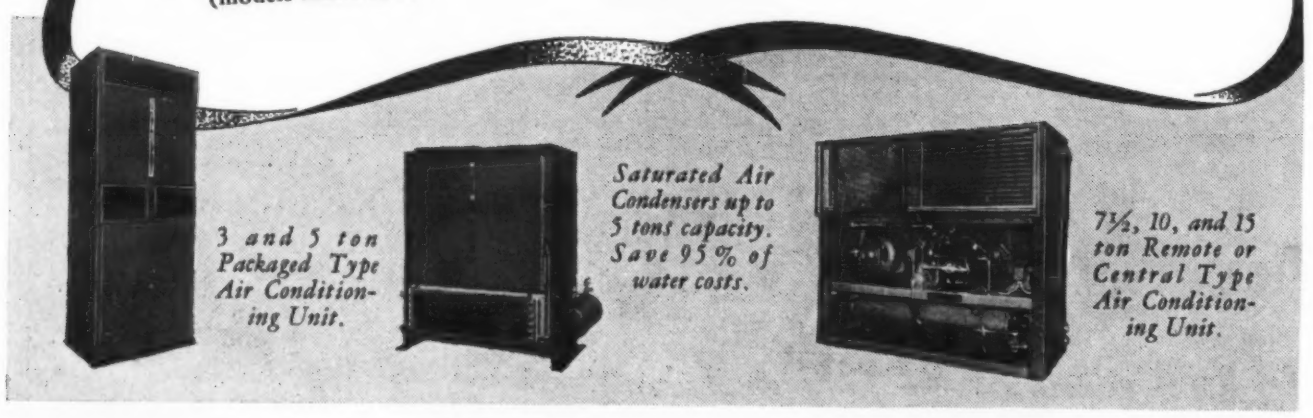
- Centro Ring Positive Pressure Lubrication
- Timken Tapered Roller Bearing (models above ¾ hp.)
- Removable Cylinder Heads
- Drop forged, alloy steel, heat treated crankshaft and connecting rods
- Balanced sylphon bellows seal
- Unusually large condensers and receivers

Every unit in the complete Curtis line is designed and built to deliver exceptionally dependable, trouble-free, economical performance—the result of 88 years of successful manufacturing experience, advanced engineering, precision methods, and the use of the finest materials throughout.

It will pay you to write to Curtis for complete information on the Curtis line. Find out how Curtis "Extra Value" can mean "Extra Profits" for every Curtis dealer.

CURTIS REFRIGERATING MACHINE DIVISION
of Curtis Manufacturing Company
1912 Kienlen Ave., St. Louis, Mo.
Established 1854

CURTIS REFRIGERATION AIR CONDITIONING FOR COMMERCIAL


3 and 5 ton Packaged Type Air Conditioning Unit.
Saturated Air Condensers up to 5 tons capacity. Save 95% of water costs.
7½, 10, and 15 ton Remote or Central Type Air Conditioning Unit.

Industry Turns To Air Conditioning To Obtain Needed Production Speed-Up

(Concluded from Page 16, Column 5)

the requirements of production in defense has caused many companies producing or processing the materials and those making parts for defense machines to increase their output. Air conditioning, refrigeration, and auxiliary apparatus were recognized as an aid to increase production while maintaining high quality and the best operating efficiency.

The following materials and companies providing them are typical of the many users of air conditioning equipment.

ABRASIVES

The **Carborundum Co.** of Niagara Falls, N. Y. installed two more dryers in 1941, bringing the total number to 13 used in abrasive manufacturing.

The **Waltham Grinding Wheel Co.** of Waltham, Mass., added air conditioning and refrigeration to serve the space in which grinding wheels are manufactured.

ALUMINUM

The **Reynolds Metals Co.,** Long View, Wash. installed air conditioning to serve a rectifier building used in the production of aluminum.

BEARINGS (Roller)

Bower Roller Bearing Co., Detroit, Mich., began using air conditioning and refrigeration to serve the manufacturing spaces for ball and roller bearing manufacture.

CHEMICALS

Carbide & Carbon Chemicals Corp. of South Charleston, W. Va., put in a 350-ton capacity centrifugal refrigerating machine to cool alcohol brine used in the manufacture of resin plastics.

Charles Pfizer Co., Inc. of Brooklyn, N. Y. long users of air conditioning, installed equipment to control the temperature, relative humidity and air circulation in storage space, laboratories, and offices.

Lusteroid Container Co., Inc., South Orange, N. J. began using air conditioning equipment for the control of humidity and temperature in lacquer spray room.

Pennsylvania Salt Mfg. Co., Wyandotte, Mich., completed plans to use a large centrifugal refrigerating machine to be used in processing chlorine.

Solvay Process Co. increased its use of air conditioning by installing equipment to dehydrate compressed air at its Baton Rouge, La. plant.

CONCRETE

Testing laboratory was equipped with apparatus to control the indoor weather so that the tests would not be subjected to variations in outdoor conditions.

COPPER

Copper, long mined in conditioned air at the **Magma Mine,** is in such demand that three new centrifugal refrigerating machines to increase the air conditioning at the Magma Mine were installed in 1941. This extension is the third made since the first installation in 1937 and provides for air conditioning to the 4,600-foot level.

DIAMONDS

Diamond cutting, hard to do in humidified weather, has been speeded up 30% by **Baumgold Brothers** of New York City with the installation of air conditioning equipment in the cutting room.

FLUORESCENT LIGHTS

Fluorescent light tubes made by the **Hygrade Sylvania Corp.** of Danvers, Mass., are now manufactured in air the temperature and humidity of which are now controlled automatically. The apparatus also cleans the air delivered to the manufacturing spaces.

FREQUENCY METERS

A product of the **Zenith Radio Corp.,** Chicago, Ill., frequency meters will be tested in laboratories kept at very low temperatures with mechanical refrigeration.

GLASS (Safety)

Supplied by **Pittsburgh Plate Glass Co.** of Creighton, Pa., safety glass is processed in conditioned air. The glass is known as "Bullet-proof."

INSTRUMENTS

Instruments used in aircraft, boats, and other defense products are made and kept accurate to close tolerances with conditioned air. Prevention of marring surfaces with perspiring hands and inaccurate calibrations by changes in temperature or the introduction of other deteriorating effects are assured with conditioned air. Typical plants using indoor weather-making equipment for the manufacture of instruments are:

Axelson Mfg. Co., Los Angeles, Calif.

Bausch & Lomb, Rochester, N. Y.

Kollsman Instrument Co., Long Island City, N. Y.

Spencer Lens Co., Cheektowaga, N. Y.

OIL

Testing laboratories of the **Standard Oil Co. of New Jersey,** Bayway, N. J., are now air conditioned.

PLASTICS

Bakelite Corp., South Bound Brook, N. J., installed two centrifugal refrigerating machines totaling 1,000 tons capacity for use in making Vinylite, a new plastic.

Rochester Button Co. of Rochester, N. Y. is using dehydration in connection with the manufacture of plastics.

RUBBER

Several large centrifugal refrigerating machines have been installed in 1941 for use in processing synthetic rubber and in making rubber tires.

STEEL

The increase in pig iron production obtained with conditioned blast furnace air, first used by **Woodward Iron Co.** of Birmingham, Ala., has been extended in 1941.

Jones & Laughlin Steel Corp. equipped one furnace in Aliquippa, Pa., another in Pittsburgh, Pa., so that the air used for the blast would be controlled for providing maximum production.

Bethlehem Steel Corp. of Sparrows Point, Md. completed plans to install refrigerating equipment and air conditioning apparatus to condition the blast air for four furnaces.

Brewery Storage Cellars May Be Air Cooled For Raid Shelters

BUFFALO—Air conditioning and ventilating may be brought into play to make habitable numerous brewery storage cellars in Western New York which have been offered as air raid shelters by brewery owners.

Already breweries in Buffalo and Rochester have offered use of their abandoned cooling cellars to defense authorities for protection of civilians during air raids. However, it was pointed out that the antiquated cellars would have to be properly ventilated before they could be used for this purpose.

Storage cellars of the Lang Brewery in Buffalo have been offered for defense use. They are regarded as the safest place in Buffalo during an air raid. The old cellars were abandoned 40 years ago, when modern refrigeration replaced them.

A.S.H.V.E. Publishes Technical Programs

NEW YORK CITY—A 48-page booklet outlining the programs of the research technical advisory committees of American Society of Heating & Ventilating Engineers has recently been released by A. E. Stacey, Jr., chairman of the society's committee on research.

The booklet contains the personnel of each committee, its scope of activity, an outline of planned research investigations, available laboratory facilities, a list of publications concerning each committee program, and illustrations showing typical equipment in the several research laboratories. A bibliography of research reports also is included, together with regulations governing committees. A limited number of copies of the booklet are available from American Society of Heating & Ventilating Engineers, 51 Madison Ave., New York City.

Blowers
Centrifugal blowers with either forward or backward curved wheels, in types and capacities for every ventilating, circulating, exhausting, cooling or conditioning application.
Air Washers
Single, double and triple stage in capacities for every job of air cleaning, cooling, humidifying, dehumidifying.
Coils
For high or low pressure steam heating; for hot water; for cooling, drying, tempering; in every capacity for every coil purpose.
Unit Heaters
Suspended type steam heating units equipped with Deflecto Grilles for distributing heat in any direction upward, downward or sidewise.
Blower Heaters
Wall, floor and ceiling models for steam or hot water; equipped with Deflecto Grilles for full directional control of heat distribution.
Unit Coolers
Suspended types for cold water or direct expansion; also built for combination cooling and heating applications.
Furnace Blowers
Complete assemblies with top, floor, front or rear motor mounts; wheels, single or twin; scroll housings. Sizes for every furnace or light duty air conditioning application.
Furnace Blower Filter Units
Complete cabinet assemblies of blower, motor, furnacestat and filters for converting gravity warm-air furnaces to forced air type; 800 to 5000 c. f. m. capacities.
Evaporative Kooler-aire
Self contained evaporative units employing patented Gyra Spray washing and evaporating systems for low cost cooling or humidifying application.
Sanidaire Humidifiers
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For there are two fronts on which this fight must be fought and won: First, and most important, are the needs of our fighting forces; second, but none-the-less vital, are the needs of the civilian forces who must keep our fighting men supplied with the tools of war.

On this second front are your new opportunities: Defense housing and modernization; maintenance and repairs; new plant construction; old plant expansion; defense production. In every factory, every business place, every home — wherever national security, morale, health and welfare are best served, there is need for your services and our equipment.

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F. M. COCKRELL, *Founder*

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Refrigeration Will Help Win the War

Priority Orders For Commercial Units & Repair Parts Progressing

THIS information cannot be classified as "news," because it is not definite. Nevertheless, we have made careful inquiries about the forthcoming OPM orders on commercial refrigeration equipment, and repair parts for *all* types of refrigeration installations, and learn that they are "progressing."

Latest information is that these orders will come out of the OPM hopper in almost exactly the same shape that they went in, and as they were reported in the Dec. 24 issue of AIR CONDITIONING & REFRIGERATION NEWS.

The orders have been formally drawn up, and have achieved most of the concurring signatures of the government officials which are necessary before the orders can be announced and take effect.

ORDERS MAY BE THROUGH BY FEB. 1

How much longer will the industry have to wait? Nobody in authority will venture a prediction, but people who should know tell us that the orders *should* be "through" before the first of February. Because of the division of authority in OPM, it takes quite awhile to get an order approved.

If this does come about, it will be welcome relief to many manufacturers and hundreds of jobbers. Some manufacturers are now simply marking time, unable to ship anything without priority orders, and unable to get or use certain necessary materials. While waiting, their plants are shut down.

The scarcity of tin, as suggested on page 1 of this issue, makes refrigeration even more essential. Perishable foods must be preserved until consumed; and when canning is curtailed—as it will be, sharply, and with glass unable to take up all the slack—refrigeration will be our sole remaining method of food preservation.

Production of commercial refrigeration equipment and repair parts must be maintained, if we are to go on eating.

Our Friends Abroad

ARRIVAL of a Christmas card from Frank Corliss, a longtime subscriber residing in Manila, Philippine Islands, is a grim reminder that many dozens of subscribers to AIR CONDITIONING & REFRIGERATION NEWS are "carrying on" their work in refrigeration despite mortal danger from bombs, bayonets, and bullets.

The day after Pearl Harbor an order for one of our refrigeration service manuals came in the mail from a soldier in Guam. We have also recently sent service manuals on request to soldiers stationed at Pearl Harbor, San Diego, and elsewhere.

Subscription renewals have recently come in from the Dutch East Indies, Australia, New Zealand, England, Spain, and Sweden. It's interesting to note, in that connection, that even the "Saturday Evening Post" has announced that for more than a year it has not been granted cargo space to Australia.

FOREIGN SUBSCRIPTIONS CONTINUE STRONG

Maintenance of the proud slogan of AIR CONDITIONING & REFRIGERATION NEWS, "An International Institution," has been a matter of some worry to us since the beginning of hostilities more than two years ago. The bulk of our foreign circulation was in Europe. Shipping space was at a premium; foreign exchange restrictions got tougher and tougher.

But so far our fears have proved to be groundless. True, we have lost subscribers in Europe—although our circulation is holding up marvelously in all the lands unoccupied by Germany. And we have cut off our Japanese subscribers.

But South American circulation has increased gratifyingly, and old subscribers in Australia, New Zealand, South Africa, and the Malay Archipelago have somehow been able to wangle American funds from their exchange control bureaus to maintain their subscriptions. And the NEWS is granted top cargo space on outgoing ships!

REFRIGERATION IS HELPING WAR MOVES

All this indicates a responsibility on our part—a responsibility which we face soberly. It also indicates how important refrigeration is everywhere in the world.

Those of us who are working hard in this industry to provide the United Nations with the refrigeration facilities they need can take pride in the thought that in itself our daily toil is contributing its bit toward the successful prosecution of our fight against the enemy.

Refrigeration Will Help WIN THE WAR.

They'll Do It Every Time . . . . . By Jimmy Hatlo

ER-GOOD TO SEE YOU BACK, CHIEF. SWELL COAT OF TAN YOU'VE GOT HOW DO YOU FEEL AFTER THREE WEEKS' REST IN FLORIDA?
FINE! LIKE A NEW MAN! FULL OF PEP! FULL OF GINGER! BY GEORGE, THINGS ARE GOING TO START TO HUM AROUND HERE NOW! BODKINS!! COME HERE! SNAP INTO IT! GET THE LEAD OUT OF YOUR FEET!
YEH - FULL OF PEP! WHILE HE GETS A COAT OF TAN, ALL WE GET IS A NERVOUS BREAKDOWN FROM OVERWORK.
SURE - HE'S FULL OF GINGER AND I'M FULL OF COLD CAPSULES.
POOR OLD BODKINS COULDN'T GET THE LEAD OUT OF HIS FEET WITH A BLOW-TORCH. HE'S BEEN UP FIVE NIGHTS IN A ROW, GOING OVER THE BOOKS WITH THE AUDITORS.
PALM BEACH
MIAMI
1-6
THE BOSS ALWAYS FIGURES HIS WINTER VACATION SHOULD REVIVE THE WHOLE OFFICE FORCE.
THANX TO H.L. OAK PARK, ILL.
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LETTERS

JOBBER SEES NEED FOR PROTECTION FROM REFRIGERANTS IN RAIDS

Aetna Supply Co.
2720 Third Ave.
New York, N. Y.

Editor:

We attach herewith copy of letter we have today written Mayor LaGuardia, Director of Civilian Defense.

Personally, we do not know of anyone better qualified to foster this plan nationally than yourself.

It is our firm belief that jobbers, service companies, and service men should get behind this plan.

Accordingly, as you will note, we have also included the names of Mr. Hovey, secretary of the National Refrigeration Supply Jobbers Association, and Mr. McDermott, secretary of the Refrigeration Service Engineers Society.

We would greatly appreciate a frank expression of opinion from you as to the merits of this plan.

IRVING J. FAJANS

The Honorable F. H. LaGuardia
Director of Civilian Defense
City Hall, New York City

Sir:

We are taking the liberty of imposing upon your time to present the following idea.

As far as we know, no adequate provision has been incorporated, under civilian defense regulations, with respect to the refrigerant (gas) contained within each refrigeration and air conditioning system, whether in homes, factories, institutions, theaters, etc.

We attach a rough outline of a suggested modus operandi. It is based upon these conclusions:

(a) Refrigerant (gas) may be toxic, inflammable, etc.

(b) All refrigerants, in liquid form (having a very low boiling point) will immediately freeze any part of the human body with which they come in contact.

(c) Prevention of panic, and elimination of fire hazards.

(d) Prevention of unnecessary destruction of equipment, and unnecessary spoilage of foods.

We believe that a uniform national method could be readily worked out and put into operation.

If the idea should prove of interest, may we suggest that men like:

George F. Taubeneck, editor and publisher, Business News Publishing Co., 5229 Cass Ave., Detroit, Mich.

Fred B. Hovey, secretary, National Refrigeration Supply Jobbers Association, 28 N. Clark St., Chicago, Ill.

H. T. McDermott, secretary, Refrigeration Service Engineers Society, 433 N. Waller Ave., Chicago, Ill.

who are nationally known throughout this industry, would be of incalculable value in promulgating a plan of this nature.

It is, of course, needless to say that we will do whatever is asked of us.

IRVING J. FAJANS

Suggested outline of plan for incorporating refrigeration and air conditioning engineers and service men into civilian defense.

1. Organize all refrigeration and air conditioning engineers and refrigeration service men, in each municipality under direct supervision of the Fire Department.

2. Especially picked and trained men, in each district, to be given authority to destroy equipment when necessary.

3. Proper training of mechanics (not in the industry) for emergency work.

4. Owner of each refrigeration and air conditioning machine to be held personally responsible for a tag (of a color to be designated) being placed on every shut-off valve.

5. Each owner (if data is not already available) to furnish the proper authorities with the manufacturer's name, type, and kind of refrigerant used, of each machine.

6. All multiple systems—such as apartment houses, hotels, etc. (where a number of boxes are refrigerated from one central unit)—to be inspected to see that proper shut-off valves are installed and functioning.

7. A properly trained man to be always available, at all industrial plants, theaters, apartment houses, office buildings, etc.

SHORTAGE OF REPAIR MEN IS SERIOUS, TOO

Victor Sales & Supply Co.
2222 Arch St., Philadelphia, Pa.

Editor:

Many of us have been concerned with the problem of getting refrigeration repair material. We have overlooked the seriousness of the great decline in number of repair men just when they are needed most. In the summer there are never enough good repair men to do work requiring immediate attention without working 12 hours or more every day in the week. Many of these men have taken positions in defense industries and now some of them are being drafted.

This will affect the public most. It will increase greatly the cost of repairs and will result in considerable loss of merchandise due to spoilage. It will probably overwork many of the good mechanics and it will certainly affect both the distributors and manufacturers of refrigeration supplies. This would seem just as serious as the shortage of vital materials.

Certainly the service men should, through their societies, take the necessary steps to prevent the situation from becoming very serious. We all know that repairs of existing equipment are going to be more important than ever this summer.

ALEX HOLCOMBE

'HOW IS CANEC BOARD AS INSULATION?'

General Refrigeration Div.
Yates-American Machine Co.
Beloit, Wis.

Editor:

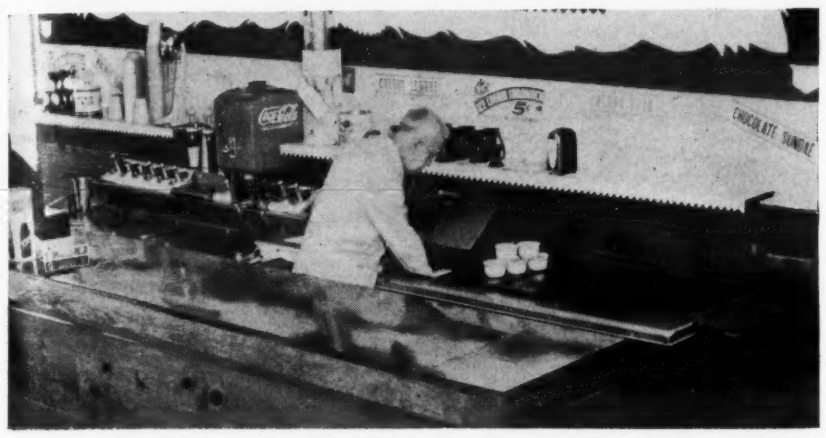
Our distributor in India has asked for our opinion on the value of canec board as an insulation. He states that this is being offered in India in 12 foot x 4 foot x 2-inch form. We assume that this is the trade name of an insulation board used in refrigeration work but we have never seen it advertised in your newspaper or any of the trade publications. It is possible that this is made in India since they do not ask us to quote, but simply ask our opinion on it.

Any information that you can give us would be greatly appreciated.

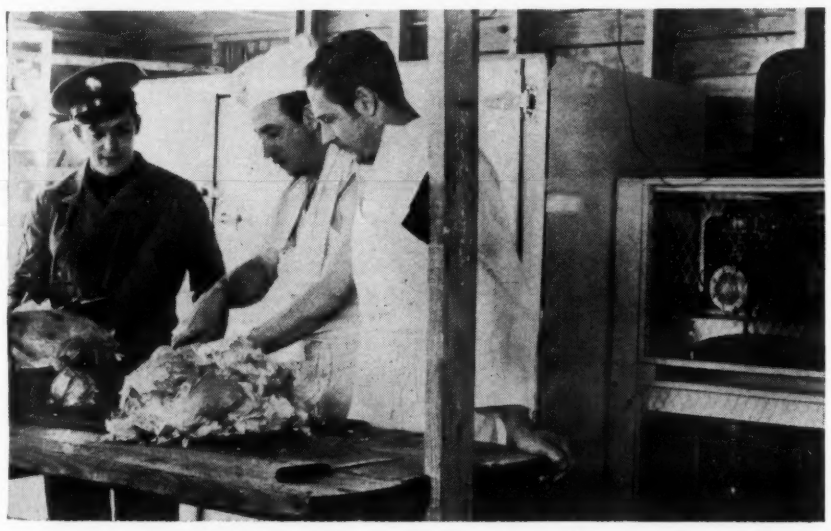
A. M. SAMP, Manager,
Sales Engineering

Refrigeration Joins the Army

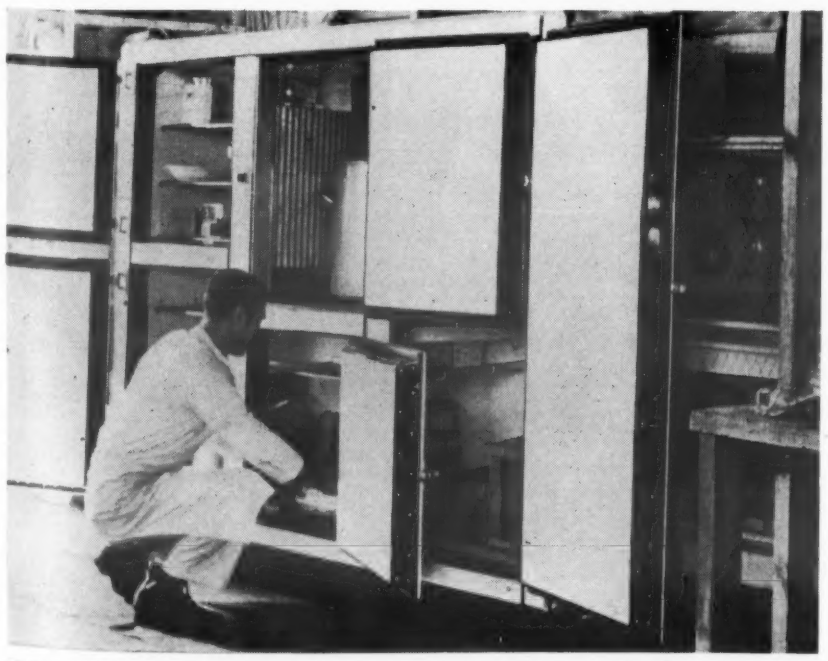
With the United States actively at war, the refrigeration industry will be called upon to fill even heavier demands for equipment for the preservation of food. In this army mess hall, tons of food, kept in perfect condition by modern refrigerated equipment, are served. These pictures are by Armstrong Cork Co., producer of corkboard and Fiberglas insulation used in refrigeration products.



Efficient refrigerated equipment is an all-important factor at the cantonment's soda fountain and ice cream bar.



Here two army chefs are preparing food while their top sergeant looks on. In the background is a refrigerator built by Seeger Refrigerator Co.



This efficient reach-in refrigerator is on 24-hour duty at an army cantonment. The army chef opened all of the doors of this box to show the large amount of storage space it provides.

WORK
---will do the job

There are no problems in the defense program that can't be solved by good old-fashioned work. Work built this nation; work will defend it, especially if the work is done to the very best of our ability... In supplying mechanical refrigeration equipment for today's exacting needs, we feel that we are greatly aided by our habit of maintaining quality standards of precision manufacturing –a habit that has become a tradition with us during our twenty years in this important field.

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MARION, OHIO

Universal Cooler of Canada, Ltd., Brantford, Ont.

Restrictions Tightened On Copper Scrap

WASHINGTON, D. C.—Further tightening of restrictions on copper scrap and copper alloy scrap result from a revised order issued by the Director of Priorities to maintain the flow of scrap into war industries.

No deliveries of copper or brass scrap may be made except to a scrap dealer, or with brass mill scrap to a brass mill, without specific authorization of the Director of Priorities.

The amended order revokes Order P-61, which had assigned an A-10 rating to certain users of copper and brass scrap and changes the provisions of M-9-b which permitted deliveries on such ratings. Deliveries may henceforth be made only as specifically authorized, with the exception of dealers and brass mills.

All military demands for copper scrap will be met first, and what is left will be disposed of at the discretion of the Director of Priorities.

No fabricator may keep on hand more than 30 days' accumulation of scrap unless the total is less than 5 tons. Those who generate more than a ton a month must report complete scrap inventories to the government by the 15th of the following month.

D'Alelio Named Chemist On G-E Plastics

PITTSFIELD, Mass. — Dr. G. Frank D'Alelio has been appointed chemist of General Electric Co.'s plastics department, with direct responsibility for the direction and supervision of the plastics department's rapidly expanding laboratories and research activities, announces W. H. Milton, Jr., department manager.

Dr. D'Alelio, who will make his headquarters at the Pittsfield plant, principal unit in G-E's five-plant plastics set-up, is a graduate of Boston College and holds a Ph.D. degree from Johns Hopkins university. He joined G-E in 1936.

Westinghouse To Give Volunteers Old Jobs

PITTSBURGH—Employes of Westinghouse Electric & Mfg. Co. who volunteer for service in the nation's armed forces will be given the same consideration for re-employment as provided by law for draftees, W. G. Marshall, vice president, has announced. More than 1,000 Westinghouse employes are now in military service, he said.

Michigan ASHVE Will Hear Talk On Air Conditioning

DETROIT — J. N. Livermore, Detroit Edison Co. engineer will discuss "The Adaptation of Air Conditioning to an Existing Office Building" at a dinner meeting of the Michigan chapter of American Society of Heating & Ventilating Engineers to be held at 6 p.m. Jan. 19 at the Detroit Edison building, 2000 Second Blvd.

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Army Demands the Latest In Refrigeration With Planning Based on 'Mobility' of Units

Army Engineer Explains Principles of Designs

By Andre Merle, Refrigeration Engineer, U. S. War Department

Extended fin surfaces and other developments in refrigeration work have been made use of in Army construction. And why not? It would appear to this writer that to design apparatus for Army use which did not follow the trend as now exists in the refrigerating industry would not make sense. We don't want to find ourselves in the position whereby we would have to call for equipment which was in any way special, as far as commercial refrigeration practice was concerned.

Today we are faced with another unforeseen fact. Shortage of standard every day materials. It is now considered wasteful to make use of more materials in the construction of a piece of equipment than is absolutely required. It would be a bit dumb to make use of many, many extra rows of bare pipe coils rather than extended fin surface, which is in universal use today. Likewise, one would not be quite fair in the conservation of vital materials if low limits of r.p.m. speeds were to be specified.

In plain words, one should not "go backwards" in the design and specifications of refrigeration for Army use. The old thought that anything is good enough for "Uncle Sam" has gone. And, as far as this modern army is concerned, it will "stay gone."

The thinking that an open specification, calling for modern apparatus as actually in use "today" with no petty limiting features, is the best practice, will win out in the long run. The firm which submits the best bid as per contract plans and specifications at a reasonable figure, and lower than the next equal bidder, is still, in the writer's opinion, entitled to the "job."

And, whenever petty limiting features are written into a specification, which in turn favors a manufacturer or limits many manufacturers, this writer will take polite issue, or else.

MAY GO ANYWHERE

It might be of general interest to note that all refrigeration for the Army has been planned so that the cold storage facilities will function in Alaska or the island possessions. No one can foresee the exact location of the building.

The question of which wall will face south or east cannot be arrived at during the planning period. In fact, one would be quite a seer to even venture a guess as to the state or county the entire "camp" will be located in.

Also the question of how much food and, of equal importance, what kind of food, is still another problem met in engineering planning for army use. One has to average out these important conditions, and always bear in mind that the need of refrigerated facilities is now. It is always a simple matter to review something that has been completed and to pass comment. Likewise it is most educational for future planning to review and to profit by the so-called mistakes of the past. This is even typical of the auto industry. As, according to the recent literature which describes the 1942 models, someone sure made a lot of errors in the current models.

Considerable frozen boneless beef is now on the schedule and advanced planning foresaw this trend and designed certain rooms within the larger cold storage facilities to take care of this important product. These rooms have been designed to operate at from 10 to 15° F.

CONCRETE CONSTRUCTION

Insulation, coils, defrosting arrangements, controls, etc., were selected and specified to produce the required temperatures with a minimum of attention. Concrete structures were used to prevent the expense which a fire could bring about. The question of rodents, etc., was also considered. Likewise, the larger cold storage facilities were designed to accommodate a fixed number of troops.

And, it was planned to construct a number of these standard units, at different sections of any one camp rather than to combine the buildings in one location. Who can tell when a camp might be subject to an air attack?

It was not considered good military practice to construct a number of different sized cold storage facilities, say one for perhaps 15,000 men another say for perhaps 45,000 men. That makes good sound military sense. Far better to have a number of smaller units than to have a large bulky central unit.

Again, when we start to demobilize it will be a simple matter to secure units, first, say, unit number three, then number two, and so forth. Of course, this follows standard commercial thinking and not old World War No. 1 thinking. Large central storage of course does fit in better with the setup of heavy bulky equipment, but of course the change in planning could not have been influenced by any manufacturer or their employes.

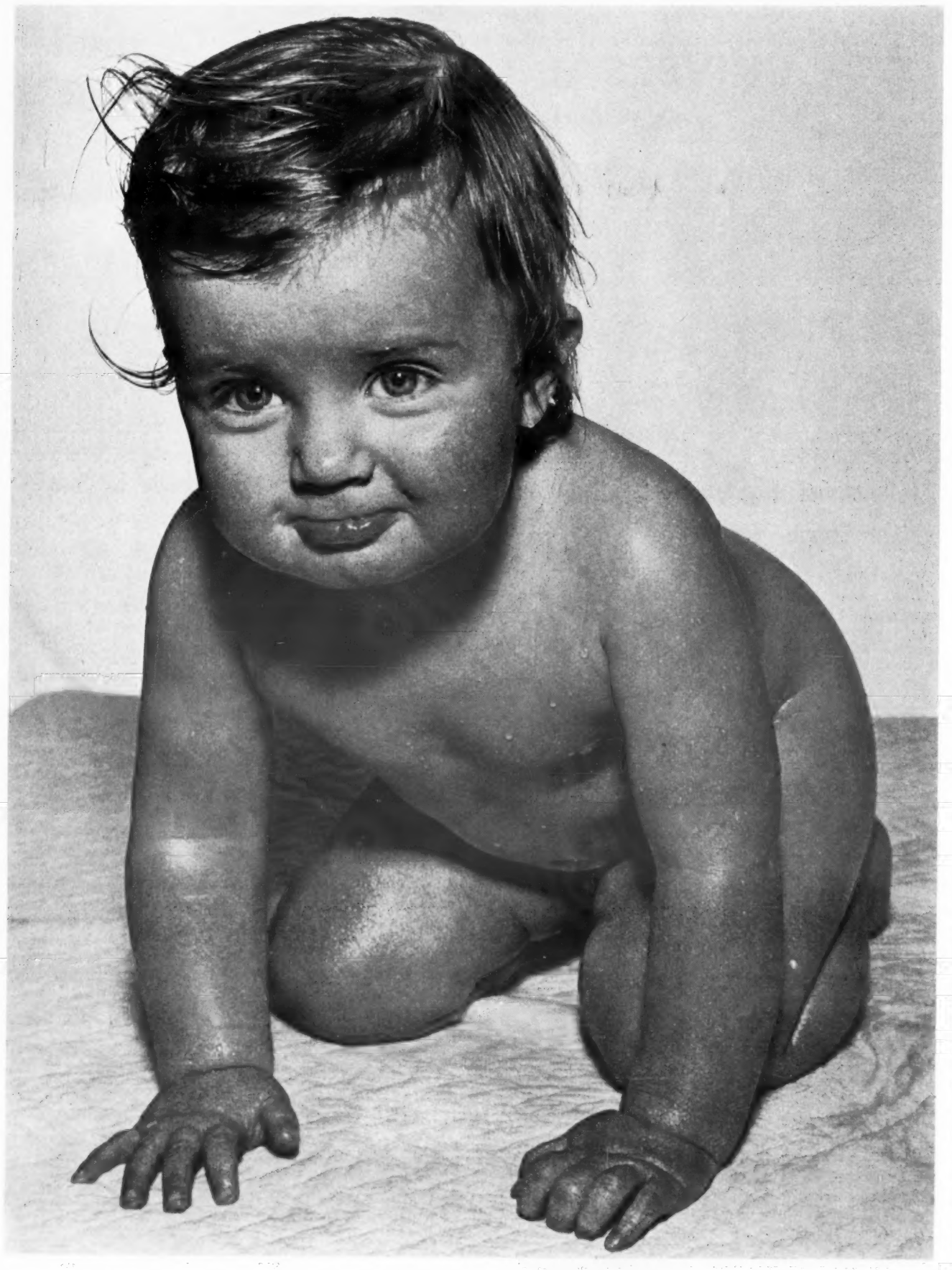
Standard specifications call for equipment which is listed as standard in printed catalogs. And, one cannot read in or out any feature which is not indicated within the printed standard catalog's data. This is an important feature of Army specifications. It is also of interest to keep in mind that as a general rule Army specifications stipulate the size and capacity of each item.

Note that the conditions of both dry and wet-bulb temperatures are not so stipulated. Keep this important point in mind. The army designs and stands by their design as to the assembly of the equipment's final result. We do not ask a bidder to both meet the requirements of the specifications and at the same time guarantee the results of both temperature, and/or let us say operating time, etc. Let's hope that this tried and proven system of bidding remains in force.

FACILITIES FLEXIBLE

It is well to keep in mind that the present cold storage facilities have sufficient capacity to both hold and if need be freeze cattle slaughtered at the camp by military personnel. And, all food products are obtained direct from the larger packers today. There is no middle man in this food set-up. The food products enter the camp via refrigerated train or truck direct. This, of course, does away with any local warehouse need. And, perhaps this arrangement may have caused the loss of some little profit to warehouse and middle men operations.

One could not make mention of the refrigeration planning of the army without paying tribute to such men and officers as Col. Hugh J. Casey, Lt. Cols. Elsmere J. Walters, Anderson T. W. Moore, George F. Lewis, and Capt. Christian Dryer.



Buy a Bond for Baby MILLS NOVELTY COMPANY

Official Asks Master Allocation Plan

NEW YORK CITY—To make possible a smooth flow of scarce raw materials into defense industries, a master plan for allocation must replace the present inadequate procedures, declared Benjamin Caplan of the Office of Production Management in a paper read before the annual meeting here of the Econometrics Society by Professor E. G. Working of the University of Illinois.

"Although present allocation procedures have improved the situation for fabricators," Mr. Caplan said, "they do not offer any assurance that the allotments are so made as to assure the most effective use of all scarce materials. The current procedures have been developed by individual material diversions, with very little correlation between them."

Lack of master plans and time schedules of production requirements prevent the allocation of one product to be meshed with that of another," Mr. Caplan contends. Several commodities, however, impinge upon one another in the making of an end-product, either because both are needed in its manufacture or because one can be used as a substitute for another, he pointed out.

"Only by allocating in accordance with such a master schedule can it be assured that fabricators will not be held up by 'plenty of steel, no copper.' Until the principle of control from 'bottom up' throughout the field of scarce raw materials is adopted and administration is in accordance with an end-product preference classification and master-plan production, there can be no satisfactory assurance of the smooth flow of scarce raw materials into the production of defense materials," said Mr. Caplan.

The Econometrics Society also heard Morris A. Copeland, director of OPM's bureau of research and statistics, predict that the output of munitions and defense construction in the United States would reach an annual rate of $24,000,000,000 by the end of the first quarter in 1942.

DuPont Can Produce Cork Substitute By Using Nylon

WILMINGTON, Del.—Nylon can be used to manufacture synthetic leather and sponge material, which, it is claimed, will serve as a substitute for cork insulation, it is revealed in a patent granted recently to John B. Miles of the research laboratories of E. I. du Pont de Nemours & Co.

The same nylon used for hosiery is employed in making these substitutes. Nylon leather is claimed to be strong and pliable, and readily worked. In making the "leather" nylon is ground and melted under pressure of an inert gas, such as carbon dioxide or nitrogen. Many fine bubbles are entrapped to form small cells in the molten nylon, which is then extruded from a slit in the form of sheets or molded into slabs to make the "leather."

Density and pore size of the product can be varied by controlling the pressure of the inert gas to produce porous or spongy products, which are claimed to be superior to natural or other synthetic sponges. These "sponges" are said to possess great resilience, strength, toughness, and resistance to deterioration, and to maintain their form over a wide temperature range.

Both the sponge and leather products are claimed to be useful in electrical and heat insulating applications, and soundproofing.

Westinghouse Works on $3 Million Army Order

MANSFIELD, Ohio — The Mansfield plant of Westinghouse Electric & Mfg. Co. will receive a $2,750,000 U. S. Army contract for 37 millimeter armor-piercing shells, reports B. W. Clark, Westinghouse vice president. Notification of the award was received from Army Ordnance Headquarters in Cleveland.

The contract will provide employment for several hundred persons, and machinery and other equipment necessary for this work will be ordered immediately. Production should be started shortly after the first of the year.

The 37 millimeter shells, which are approximately 1½ inches in diameter and 6½ inches in length, are particularly effective in anti-tank warfare.

The new contract will be the second major defense project awarded to the local Westinghouse plant.

WE ARE PROUD

OF SEVERAL FACTS THAT HAVE BECOME A PART OF OUR BUSINESS FABRIC

THE QUALITY OF ACME PRODUCTS

THE CLIENTELE THAT HAS MADE OUR SUCCESS POSSIBLE

OUR EFFORTS IN NATIONAL DEFENSE

It is natural that the Government should depend on us to do our utmost for the preservation of liberty, but our friends in the industry also have a definite claim on our resources and activities.

We will serve our country according to its demands on us and we will try to serve our friends who are fighting for defense of the HOME FRONT.

There are many ACME QUALITY PRODUCTS that are available to you and we are not so completely "Defense" that we can't serve you.

Let us have your orders and inquiries—we'll do the best we can —if we fail it won't be our fault.

CONDENSERS - WATER CHILLERS
PIPE COILS - HEAT EXCHANGERS
OIL SEPARATORS

ACME INDUSTIES, INC.
JACKSON - MICHIGAN

Herman Goldberg's Party . . . Similar To All-Industry Show Funfestivities

Each year Herman Goldberg, Chicago manufacturers' representative for several lines of refrigeration equipment and supplies, holds a Christmas party in the ballroom at the Stevens hotel.

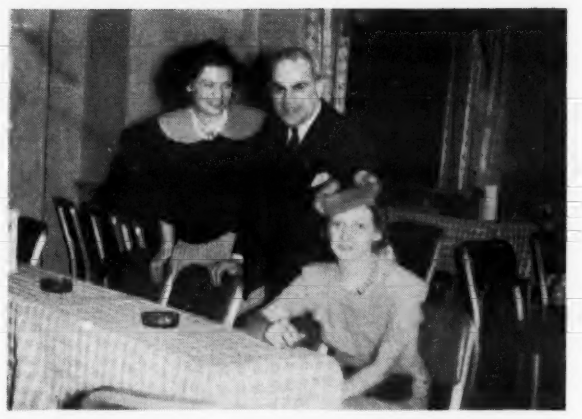
This party is somewhat like a full-dress "preview" of the fun and frolic that usually accompanies the All-Industry Exhibition in January. But with no show this year, the News publishes these pictures to give some flavor of the real show to its "show-in-print" issue. (All identifications of pictures read from left to right.)

(Upper right) Jim Strachan, Kerotest; Len McKesson, Ansul Chemical Co.; A. Don McGill, Peoria; Floyd Duval, Mills Novelty Co.; Earl A. Vallee, Automatic Products Co., and president of Rema. Then at right, Joe Novotny, Harry Alter Co.; Bernice Daniels, Herman Goldberg Co.; Ben Dunn, NBC announcer.

(Center right) Host Herman Goldberg awards prizes to jitterburg contest winners Mr. and Mrs. P. J. Olds; Mr. Goldberg again, with his wife (standing) and Mrs. Marc Shantz, wife of a friendly competitor.

(Lower right) Out-of-towners John Sackey, Galesburg; Clarence Stumpf, Ontarioville; John Sackey, Galesburg; and Mrs. Stumpf. Entertainment was as always fast and first-rate.

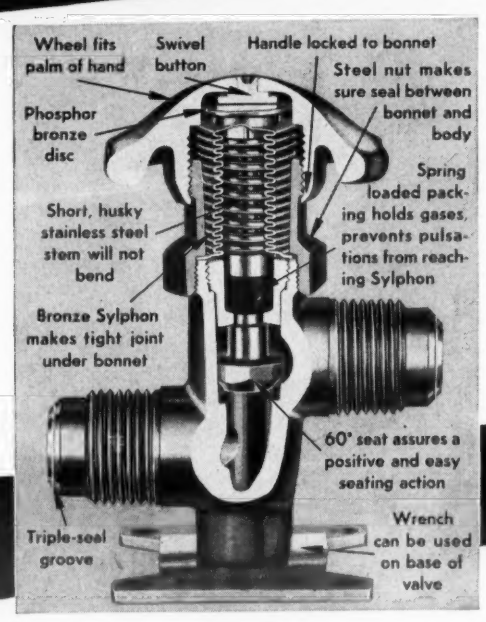
(Below,top) Mr. and Mrs. Joe Coyne of Henry Valve Co. with their sea-going son, Joe, Jr. At right H. T. McDermott, secretary, R.S.E.S., confers with W. C. "Bill" Allen, Modern Equipment Corp. (Below, bottom) Mr. and Mrs. Ray Thompson, Refrigeration Maintenance Corp. At right, group from the Harry Alter Co., including Janice Bergman, Joe Novotny, Emilia Cole, Carmela Reda, Max Geisler, Jeannette Seigan, and Mr. and Mrs. Alex Port.



FOR BETTER TUBING CONNECTION WORK USE —

IMPERIAL

• TRIPLE-SEAL FITTINGS
• SYLPAK VALVES
• AND IMPERIAL TOOLS


Wheel fits palm of hand
Swivel button
Handle locked to bonnet
Steel nut makes sure seal between bonnet and body
Phosphor bronze disc
Spring loaded packing holds gases, prevents pulsations from reaching Sylphon
Short, husky stainless steel stem will not bend
Bronze Sylphon makes tight joint under bonnet
60° seat assures a positive and easy seating action
Triple-seal groove
Wrench can be used on base of valve

You need the double security of SYLPAK VALVES

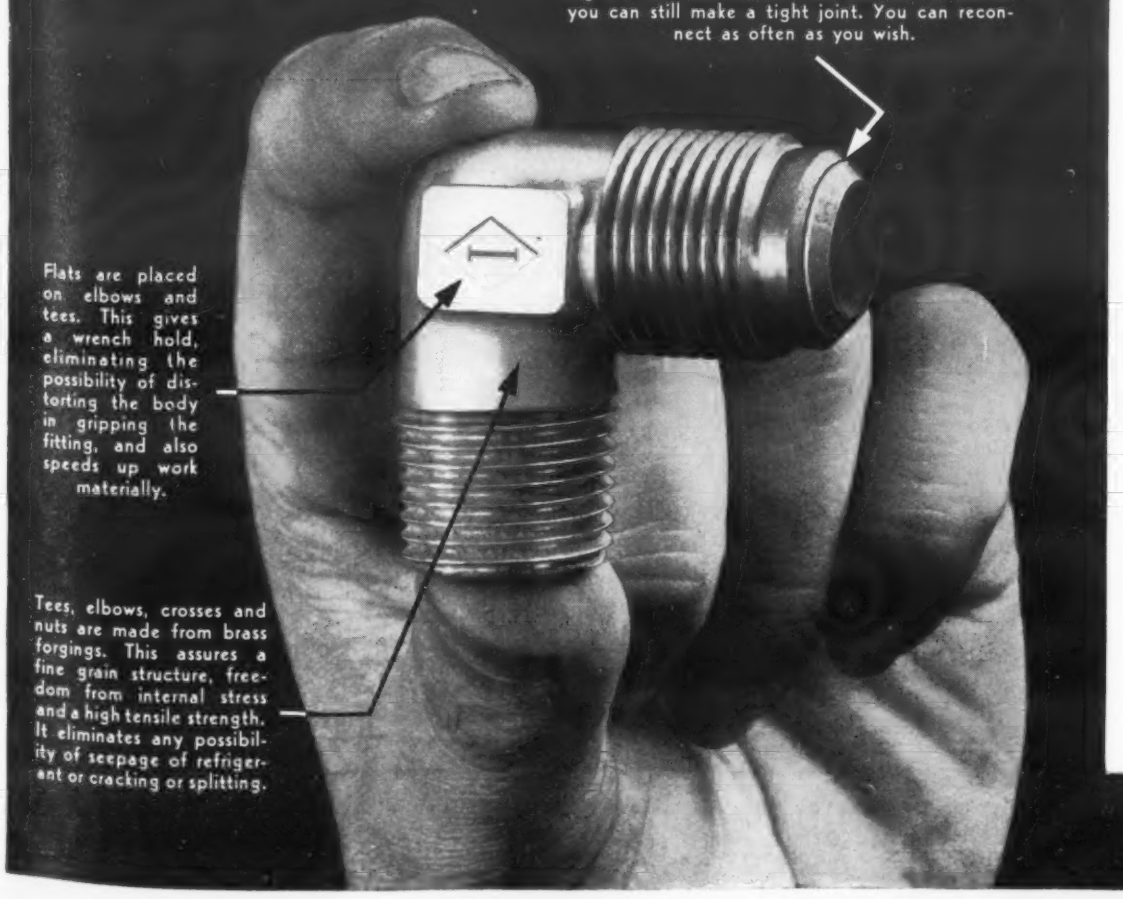
THE NEXT TIME SPECIFY SYLPAK AND BE SURE !

HERE is a valve that offers the double security of the Sylphon bellows plus a good spring-loaded packing. It stands up under pulsations, vibrations and excess pressure.

These valves are available for tube diameters from ¼" to ¾" for S.A.E. or solder fittings as desired. Sylphon type valves can also be furnished in sizes up to 1½" female I.P.T. and 1⅝" O.D. tube size.

TRIPLE-SEAL GIVES YOU THESE IMPORTANT FEATURES

The "Triple-Seal" groove is an exclusive feature on all Imperial Refrigeration Flared Fittings. When the flare is drawn up against the groove in the seat the copper is actually extruded into the groove. You get a tight, self-seating joint without danger of twisting the tubing or shearing off the flare. Even when the seat is nicked you can still make a tight joint. You can reconnect as often as you wish.

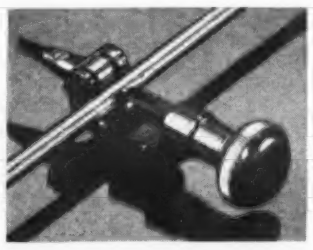


Flats are placed on elbows and tees. This gives a wrench hold, eliminating the possibility of distorting the body in gripping the fitting, and also speeds up work materially.

Tees, elbows, crosses and nuts are made from brass forgings. This assures a fine grain structure, freedom from internal stress and a high tensile strength. It eliminates any possibility of seepage of refrigerant or cracking or splitting.

With IMPERIAL TOOLS you can make tight connections that stay tight!

Imperial has developed quite a number of tools that are used by installation and service men everywhere. We show here three of these tools that should be in the kit of anyone who has the job of connecting up tubing.



• Tube Cutter No. 174-F will cut 3/16" to ¾" O.D. quickly and easily. Makes a clean, right angle cut, leaving no chips or burrs and does not flatten the tube. Forged brass body, polished chromium plate finish.

• Tube Bender No. 364-F made in sizes 3/16", ¼", 5/16", ⅜", ½", ⅝" and ¾" tubing. A one piece, open side bender; for making bends at end or any part of tubing. Handy where tubing has been partially connected. Bends to any angle up to 180°. Constructed of steel; light in weight; extremely rugged and durable.

• No. 175-F Flaring Tool makes it easy to flare tubing without cracking or splitting. Yoke is self-centering. Flares 3/16", ¼", ⅜", ½", ⅝", and ¾" O.D. tubing.

For other sizes and types of tools see your Jobber or write for catalog.

THE IMPERIAL BRASS MANUFACTURING COMPANY
565 SOUTH RACINE AVENUE • CHICAGO, ILLINOIS

Plumbing, Heating & Electrical Supplies Get Priorities Assistance From OPM

WASHINGTON, D. C.—Assurance that "adequate" quantities of plumbing, heating, and electrical supplies will continue to be available through usual wholesale and retail channels, is given in a program announced last week by the Priorities Division, OPM.

(Apparently the new program does not apply to refrigeration and air conditioning equipment, since these products are not mentioned specifically in the text of the OPM order.)

Manufacturers of essential types of supplies will be given priority assistance in obtaining the necessary materials, within the framework of the Production Requirements Plan. They will not, however, be required to prove deliveries under rated orders, where the supplies are to be sold to ultimate users not customarily assigned preference ratings.

A manufacturer wishing to qualify for the preference ratings available under the program should make application on form PD-25a, addressed to the Production Requirements Branch, OPM. If approved, he will be granted priority assistance in securing materials in amounts which will be determined after consideration of the importance of the particular product, amounts previously manufactured, the recommendations of the appropriate industry branches of OPM, and other similar factors.

Also a part of the program is Suppliers Order M-67, addressed to retailers, wholesalers, jobbers, and all other distributors of these supplies. To assure an equitable distribution of these items, essential to public health and welfare, it establishes maximum inventory levels and prevents the accumulation of excess stocks at any stage of the distribution process.

The new program does not affect the provisions of Preference Rating Orders P-100, P-46, P-56, P-68, and other repair and maintenance orders issued on behalf of industry.

Text of Order M-67

WHEREAS, the interests of the national defense require that Plumbing, Heating, and Electrical Supplies be made available for the maintenance and repair of farms, homes, retail stores and commercial concerns, and in order to insure the availability of such supplies it is necessary to prevent undue accumulation of inventories in the hands of Suppliers;

NOW, THEREFORE, IT IS HEREBY ORDERED THAT

1046.1 Suppliers' Order No. M-67

(a) **Definitions.**

(1) "Supplier" means any person (other than a Producer) whose business consists, in whole or in part, of the sale from stock or inventory of Plumbing, Heating, or Electrical Supplies. "Supplier" includes wholesalers, distributors, jobbers, dealers, retailers, and other persons performing a similar function.

(2) "Producer" means any person who manufactures, processes, fabricates, assembles, or otherwise physically changes any Material.

(3) "Sales" means sales from stock and does not include direct factory shipments.

(4) "Maximum Permissible Inventory" of Plumbing, Heating, and Electrical Supplies means

(i) in the case of a Supplier located in the Eastern or Central Standard Time Belts, an inventory (owned or consigned to him) of Plumbing, Heating, and Electrical Supplies of a total dollar value at cost equal to two twelfths of the total dollar value at cost of such Supplier's sales (as defined above) of such supplies during the calendar year of 1941;

(ii) in the case of any other Supplier, an inventory (owned or consigned to him) of Plumbing, Heating, and Electrical Supplies of a total dollar value at cost equal to three twelfths of the total dollar value at cost of such Supplier's sales (as defined above) of such supplies during the calendar year of 1941;

Provided, that no provision of this Order shall be construed to permit the accumulation of inventories of any item of Material in contravention of the provisions of any other applicable Orders or Orders issued by the Director of Priorities.

(b) Limitation of Suppliers' Inventories.

(1) Except as provided in paragraphs (b)(3) and (4), no Supplier, Producer, or other Person shall make to any Supplier any delivery of Plumbing, Heating, or Electrical Supplies which the Person making the delivery knows, or has reason to believe, will effect an increase in the Supplier's inventory of Plumbing, Heating, and Electrical Supplies above the Supplier's Maximum Permissible Inventory; and

(2) Except as provided in paragraphs (b)(3) and (4), no Supplier, shall accept any delivery of Plumbing, Heating, or Electrical Supplies from any Person which will effect an increase in inventory in the hands of the Supplier of Plumbing, Heating, and Electrical Supplies above the Supplier's Maximum Permissible Inventory;

(3) A Supplier may accept delivery of Plumbing, Heating, or Electrical Supplies, and Suppliers, Producers, and other Persons may make deliveries of such Supplies to him, if

(i) such Supplier's inventory of Plumbing, Heating, and Electrical Supplies is at the time of delivery less than his Maximum Permissible Inventory, and

(ii) the delivery is of the minimum quantity of such Material that can be commercially procured.

(4) The Director of Priorities may, from time to time, except specified Suppliers or classes of Suppliers from the provisions of this Order, subject to such restrictions as the Director of Priorities may impose.

(c) **Communications.** All communications concerning this Order shall be addressed to "Office of Production Management, Washington, D. C., Ref. M-67."

Penn Switch Issues 1942 Catalog On Controls

GOSHEN, Ind. — Penn Electric Switch Co. has just issued an attractive 16-page condensed catalog in two colors, containing complete information on its 1942 line of refrigeration and air conditioning controls. Illustrations are included for each type of control covered, together with its application, features, specifications, ordering information, approximate shipping weight, and prices.

Interesting feature of the catalog is the listing, under each type of control, as to whether or not the new 10% federal excise tax should be added to the quoted price.

Also interesting to note is the fact that Penn has used the Kalamazoo and three-ring punching combination

Copies of the new catalog (Bulletin 1487-G), in reasonable quantity, are available without charge upon application to the company.

Spreading the Industry's Story

(MANILA) 57,864 LONG

dearers, company, 2 Water ives. Water re, 726 and Huron 3 Third 617½ mpany, Military Water e, 824 ervice, Lapeer eer. and Huron , 310 litary Mili- uron et. 522 llege.

ELECTRIC REFRIGERATION NO LONGER CONSIDERED LUXURY

Industry To Play Important Part In War Effort

This article prepared by the Refrigeration Equipment Manufacturers association is of much interest to the general public at this time because of the war situation and to the Monday Business page advertisers, Kimball Radio and Appliance shop, Knight Refrigeration service; McRae-Zimmer appliances, Stinson Appliance store, and Wright-Shoffner appliances, who all handle refrigerators.

Refrigeration and air conditioning, the science with 10,000 uses for the service, the health, safety, and nourishment and comfort of mankind and the life source of hundreds of factories and mills, many mines, hundreds of thousands of jobs, and the creator of a depression-born industry that has made giant strides in the last 10 or 12 years is now facing the same crisis that is troubling many lines of business and industry—the crisis explained by that ominous word "priorities."

This youthful but lusty industry requires the use of comparatively small amounts of metals and other materials that are essen[t]i[al] to manufacture of milita[ry] is restric[ted]

article. This study of a big and thriving industry is confined to what is called the commercial and industrial refrigeration and air conditioning field.

The manufacturers are represented by a big service organization known as the Refrigeration Equipment Manufacturers Association which was started in 1935.

E. A. Vallee, vice president of the Automatic Products company, Milwaukee, is president of the association and R. M. McClure, president of McClure, Hadden & Ortman, Inc., management engineers, Chicago, is executive secretary.

Products Not Luxuries

Mr. McClure says:

"Mechanical refrigeration and air conditioning have quite generally been considered 'luxuries,' whereas they are, in fact, vital necessities in many lines of business and in the homes of a great part of the people. He cited in this connection the following interests in which commercial refrigeration or air conditioning is a necessity:

"Meat packers, meat markets, and other food stores, refrigerated railroad cars, trucks and ships, in which perishable foodstuffs are transported; dairies, food processing plants, fur storage places, public buildings, hotels, and theaters.

"These uses are not uses o[f] ury. They are real necessi[ties] present vital elemen[ts] revention of w[aste]

Pros Fa East —Old back and th dealer: Offic conduc largest the Nat marked the hog rationin Alex Sparks in the is expe by sma liver—a tioning, account Presen about 50 compare the first was not

Policy

Bad Ax of the Fa ance com hold their Jan. 13, in The bust ing

How a story of national interest can be given a "local angle" is illustrated by this reproduction of the Nema-prepared article on the refrigeration industry which appeared in the Dec. 29 issue of the Port Huron (Mich.) "Times-Herald." Appliance advertisers mentioned in the editor's note are helping to spread the story by displaying a copy of the article prominently in their stores.

FORMER COOLERS • HEAT EXCHANGE EQUIPMENT • AIR CONDITIONING, HEATING AND COOLING COILS • WATER COILS • COMMERCIAL AND INDUSTRIAL COILS • UNIT COOLERS • INDUSTRIAL BRINE SPRAY COOLERS • INDUSTRIAL DRY COOLERS • ELECTRICAL DEFROSTING LOW TEMPERATURE COOLERS • EVAPORATIVE CONDENSORS • EVAPORATIVE DIESEL COOLERS • EVAPORATIVE TRANSFORMER COOLERS • HEAT EXCHANGE EQUIPMENT • AIR CONDITIONING, HEATING AND COOLING COILS • WATER COILS • COMMERCIAL AND INDUSTRIAL COILS • UNIT COOLERS • INDUSTRIAL BRINE SPRAY COOLERS • INDUSTRIAL DRY COOLERS • ELECTRICAL DEFROSTING LOW TEMPERATURE COOLERS • EVAPORATIVE CONDENSORS • EVAPORATIVE DIESEL COOLERS • EVAPORATIVE TRANSFORMER COOLERS • HEAT EXCHANGE EQUIPMENT • AIR CONDITIONING, HEATING AND COOLING COILS • WATER COILS • COMMERCIAL AND INDUSTRIAL COILS • UNIT COOLERS • INDUSTRIAL BRINE SPRAY COOLERS • INDUSTRIAL DRY COOLERS • ELECTRICAL DEFROSTING LOW TEMPERATURE COOLERS • EVAPORATIVE CONDENSORS • EVAPORATIVE DIESEL COOLERS • EVAPORATIVE TRANSFORMER COOLERS • HEAT EXCHANGE EQUIPMENT • AIR CONDITIONING, HEATING AND COOLING COILS • WATER COILS • COMMERCIAL AND INDUSTRIAL COILS • UNIT COOLERS • INDUSTRIAL BRINE SPRAY COOLERS • INDUSTRIAL DRY COOLERS • ELECTRICAL DEFROSTING LOW TEMPERATURE COOLERS • EVAPORATIVE CONDENSORS • EVAPORATIVE DIESEL COOLERS • EVAPORATIVE TRANSFORMER COOLERS • HEAT EXCHANGE EQUIPMENT • AIR CONDITIONING, HEATING AND COOLING COILS • WATER COILS • COMMERCIAL AND INDUSTRIAL COILS • UNIT COOLERS • INDUSTRIAL BRINE SPRAY COOLERS • INDUSTRIAL DRY COOLERS • ELECTRICAL DEFROSTING LOW TEMPERATURE COOLERS • EVAPORATIVE CONDENSORS • EVAPORATIVE DIESEL COOLERS • EVAPORATIVE TRANSFORMER COOLERS • HEAT EXCHANGE EQUIPMENT • AIR CONDITIONING, HEATING AND COOLING COILS • WATER COILS • COMMERCIAL AND INDUSTRIAL COILS • UNIT COOLERS • INDUSTRIAL

MARLO

MEANS HEAT TRANSFER EQUIPMENT

MARLO COIL COMPANY • ST. LOUIS, MO.

"It's equipped with that dependable WAGNER MOTOR"

AIR-CONDITIONING equipment, compressors, refrigerators, and stokers – powered by Wagner motors continue to give faithful, reliable, efficient service year after year. This record of Wagner motor performance increases the sales possibilities of these appliances through increased confidence of users and dealers – an added sales feature that cannot be overlooked.

Alert dealers, realizing the value of this user acceptance, are quick to tell prospective customers that the appliance is equipped with a Wagner motor. The complete confidence which users place in Wagner motors help the dealer sell Wagner-motored equipment.

A FEW OF THE MANY WAGNER MOTORS IDEALLY SUITED FOR AIR-CONDITIONING EQUIPMENT

Type RK, Capacitor-Start Induction-Run (1/8 to 3/4-hp). Suitable for refrigerators, oil-burners, stokers, household air-conditioners, and other appliances.

Type RP, Squirrel-Cage (1/6 to 400-hp) — because of simple construction are low-priced, easily installed, and exceptionally sturdy and dependable.

Type RA, Repulsion-Start-Induction (1/8 to 15-hp) — the ideal motor for heavy-duty applications such as compressors, stokers, etc.

***These* BULLETINS WILL HELP YOU**

They contain motor information of value.

Get FREE BULLETINS

MAIL COUPON TODAY

AC & RN 3142-5

Wagner Electric Corporation
6400 Plymouth Avenue, Saint Louis, Mo., U.S.A.

Gentlemen:

Please send me FREE bulletins MU 182 and MU 183.

Name_____

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Address_____

City_____ State_____

Army Will Outline Frozen Foods Use At Chicago Meeting

CHICAGO—What the War Department demands in the supplying of food to the Army, and ways in which the frozen food industry can best cooperate with the military organization will be outlined at the annual Frozen Foods Luncheon Jan. 27 at the LaSalle hotel by First Lieut. James M. Gwin, officer in charge of dairy and poultry products procurement, office of the Quartermaster General here.

The meeting will be held in conjunction with the annual Quick Frozen Foods Exposition, which opens Jan. 26. Before joining the Army, Lieut Gwin was a professor in charge of dairy and poultry products procurement at the University of Maryland.

The exposition this year will be nearly double that of 1941 in size, the management of the show states. More than 25 packers of quick frozen foods and suppliers in the frozen foods field have already contracted for space, and it is expected that all the available space will be taken before opening day.

More than 2,000 distributors, packers, institution representatives, chain store executives, locker plant operators, hotel and restaurant men, and representatives of railroad and motor truck lines are expected to attend the convention, to be held in the Illinois Room of the hotel.

Among the exhibitors already signed up are the following from the refrigeration field: Grand Rapids Cabinet Co., Weber Showcase & Fixture Co., Inc., Schaefer, Inc., the Pacific Lumber Co., the Liquid Carbonic Corp., and Armstrong Cork Co.

Food Storage Concern Advertises Its 'Job' In America's Defense

OMAHA, Neb.—Importance of refrigeration in contributing to America's "food defense" was emphasized in an advertisement by Omaha Cold Storage Co. in a special newspaper section celebrating the opening of the new Martin bomber plant in this area.

Captioned "Count Us In!", the advertisement continued: "All right, fellows—you build the planes . . . while you're doing that—we'll do our part in preserving eggs and poultry for you and our vast defense armies."

Dealer Moves, Sets Up Big Service Dept.

MEMPHIS, Tenn.—Separate showrooms for refrigerators, ranges, washers, and radios, and a large service department for refrigeration and general electrical repairs are provided in the new store occupied by Sommers-Brown Appliance Co., Gibson dealership here. The new location is at 168 Union St. near the downtown section. H. Simpson manages the firm, which expects to do considerable reconditioning work on used refrigerators, according to its announcement.

Richardson Named Sales Head For Goodrich

AKRON, Ohio—William S. Richardson has been appointed general manager of B. F. Goodrich Co. mechanical goods and sundries sales, succeeding J. H. Connors, who has resigned because of ill health, announces John L. Collyer, company president.

Mr. Richardson has been with Goodrich since 1926, and has been merchandising manager of the mechanical goods sales division since 1931.

Also announced by Mr. Collyer was the appointment of Dr. Howard E. Fritz as director of research. Dr. Fritz was formerly manager of the synthetics division of the company, and since 1934 has directed the development and sale of Koroseal, the synthetic elastic discovered in the company's laboratories.

Refrigerating Process May Produce Rubber From Industrial Gases

NEW HAVEN, Conn.—Production of synthetic rubber from waste gases of the steel and petroleum industries by application of a low temperature technique secretly developed in Russia was announced by Prof. Cecil T. Lane of Yale University in an address before Sima Xi, scientific society.

These gases are mixtures of the valuable industrial gases, Dr. Lane explained. Each has a different liquefaction and freezing point, so that by lowering the temperature far below the freezing point of water the different gases may one by one be frozen out and separated into pure components.

Liquid Carbonic Sales Set All Time High

NEW YORK CITY—Liquid Carbonic Corp.'s net sales of $23,626,408 for the fiscal year ended Sept. 30 set a new record and topped by 24% net sales for the preceding year, which totaled $19,123,556.

Consolidated net profit for the year totaled $2,127,967 after all deductions, equal to $2.92 a share on 728,100 capital shares. Last year's net profit was $1,544,558.

Preference Order Widens Steel Use In Liquid Drums

WASHINGTON, D. C.—General Preference Order M-45, affecting sheet steel for steel drums to be used for overseas shipment, has been amended to provide that hot rolled sheet steel of any gauge may be used for the manufacture of sheet steel drums and that such drums may be used for all kinds of products to be shipped overseas.

Original order restricted the sheet steel to be used in the manufacture of steel drums to 16 and 18 gauge. It also restricted the use of the drums to shipment abroad of oil, gasoline, and petroleum products.

The gauge limitation resulted in temporary and local shortages of such drums for certain purposes, and removing this limitation will make available a greater supply of sheet steel for the manufacture of steel drums for a wider range of products to be shipped abroad, such as phosphorus, resin, and other items.

The order was also amended to make its expiration date indefinite instead of May 30, 1942.

At the same time, Preference Rating Order P-76 was amended to enable manufacturers of steel drums for foreign shipments to acquire sheet steel of all gauges for such purposes. Original order covered only 16 and 18 gauge steel.

Bromann Makes Cabinets For Testing War Materials, Watches, Telephones

CHICAGO—Refrigeration cabinets manufactured by Albert H. Bromann, Jr. at 820 N. Cicero Ave. here are put to a variety of uses besides the more conventional applications of food preservation.

One cooling cabinet is now being used by the Elgin Watch Co. of Elgin, Ill. to test the equalizing of watch springs. The cabinet is constructed of galvanized iron frames on which trays of watches can be placed for testing. This installation was made by Utility Sales & Engineering Co. of Oak Park, Ill., Frigidaire dealership.

War materials being manufactured for the government by the Gibbs Co. of Delavan, Wis. are also being tested in a Bromann cabinet which maintains temperatures of between —40° and —60° F. Refrigeration Equipment Co. of Chicago installed this unit.

Another unusual application was made recently for an engineer of the Western Electric Co. in his home where he plans to test telephone equipment. Mid-West Refrigerator Co., Frick dealer, handled the installation.

Hospitals also provide prospects for the firm. A large cabinet made of stainless steel, both exterior and interior, has been installed in the Deaconess Hospital of Chicago for storage of baby milk formula bottles.

A three-compartment cooler, 18 x 8 x 9 feet in size is nearing completion at the Bromann plant, and will be installed in the Mercy Hospital at Davenport, Iowa by the Sieg Co., distributor.

Three cooling rooms for the Triangle Restaurants in Chicago, each of which will contain separate compartments for meats, vegetables, and ice hold-over, are being completed by Bromann. Refrigeration equipment is being installed by Monjian.

Two beer storage rooms for a Chicago beer distributor were recently installed by the Bromann company, with Utility Engineering supplying the refrigeration equipment. One room measured 40 x 20 x 9 feet; the other, 20 x 30 x 9 feet.

Beberstein With Matthews

DALLAS, Tex.—E. L. Beberstein has joined the sales force of Matthews Engineering Co., Airtemp distributor here.

Geist Is York Director

YORK, Pa.—Walter Geist, vice president of Allis-Chalmers Mfg. Co. has been elected a director of York Ice Machinery Corp.

ANOTHER FIRST FOR CARRIER...THE NAVY "E"

"We've both earned our Navy 'E'—you for some swell shooting of those big 16-inch guns — me and the rest of us Carrier men for producing the goods the Navy needs. Even if I can't be manning a ship . . . I'll still be doing my part to make ours the best Navy in the world."

The men and management of Carrier deeply appreciate the Navy's reward for the work we've been doing for defense. We're human enough to feel proud that Carrier is first in the air conditioning industry to earn the Navy "E".

You may wonder how air conditioning deserves so important an honor.

The Electrician's Mate in the submarine knows. His life depends on huge storage batteries preserved by Carrier Air Conditioning. The Gunner's Mate on a mine-layer knows. Carrier Air Conditioning lessens his risk in handling explosives. Each healthy seaman on board the 156 Liberty Fleet ships knows. Ship's food is like home food, thanks to Carrier Refrigeration.

In the sky and on land, Carrier is earning its letter, too. In a Flying Fortress, navigators read instruments and bombardiers peer through bombsights of unmatched accuracy. Pilots of fighting planes rely on motors that climb higher, fly faster, stay in action longer. These and a thousand more triumphs of American industry depend on Carrier developments...on the microscopic accuracy made possible by the precise control of temperature, humidity, and circulation of air.

Today, air conditioning is a mighty weapon. Tomorrow, it will be an even more potent force in building a world of greater abundance.

More Steel As high as 25% more iron from *same* furnaces is result of a *Carrier* development in moisture removal from blast furnace air.

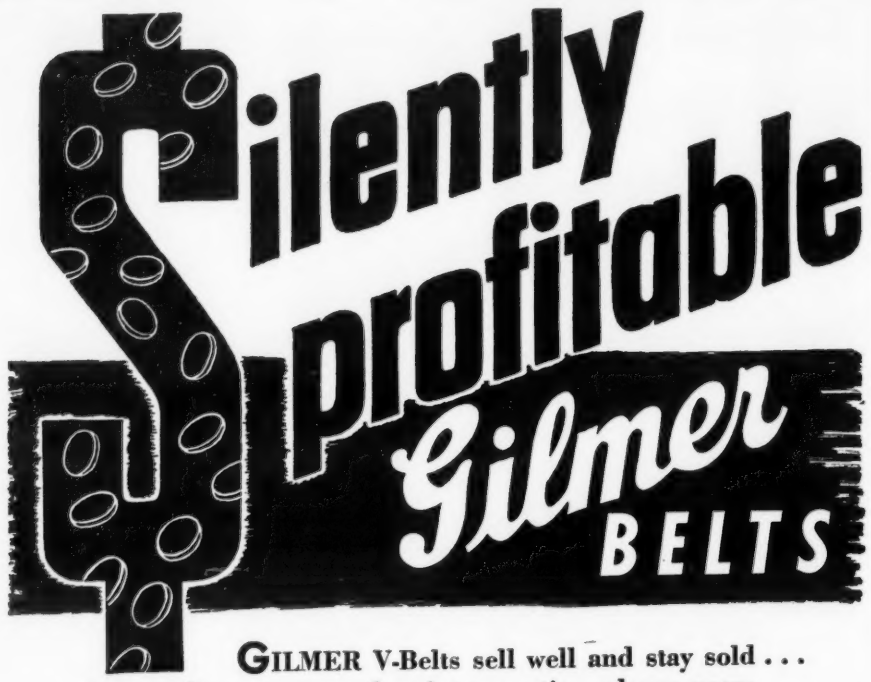
Synthetic Rubber America's ace-in-the-hole against possible rubber famine, has been made practical by *Carrier* Refrigeration.

Better World Now first in war, *Carrier* will be first in peace to bring air conditioning's benefits into everyone's everyday activities.

Carrier Air Conditioning

Carrier Corporation, Syracuse, New York

WEATHERMAKERS TO THE WORLD



GILMER V-Belts sell well and stay sold . . . their pulling power and quiet operation please users . . . increase your reputation . . . and make money for you.

Gilmers are an ideal line for quick turnover . . . they fit 7800 different models of refrigerators and other appliances, such as oil burners, stokers, pumps, compressors and air conditioners.

Telephone your jobber and ask for a copy of "America's Belt Bible," the Gilmer catalog that lists the right belt for each of these thousands of widely-used appliances.

Visit our Booth #216 at the Fourth All-Industry Exhibition in Chicago. Jan. 12-15.

Gilmer BELTS

L. H. GILMER COMPANY, Tacony, Philadelphia, Pa.

Heat Exchangers Not Meant For a 'Cure-all,' But Provide Specific Benefits, Research Shows

CINCINNATI—The application of heat exchangers for increasing evaporator capacity and improving compressor performance was discussed by K. M. Newcum, vice president and sales manager of Superior Valve & Fittings Co., before a section of American Society of Refrigerating Engineers last fall.

Mr. Newcum's talk covered the effect of heat exchangers on expansion valve operation, effect of suction gas temperature upon capacity of the system, use of heat exchangers in both high and low temperature applications, and how size and capacity of a heat exchanger should be determined.

"The heat-exchanger originally was reckoned to be a 'cure-all' for systems having insufficient low side capacity under peak-load conditions," Mr. Newcum said. "It was assumed that under such conditions the installation of a heat exchanger would: (1) permit operating at a lower superheat, hence utilizing more of the evaporator surface for effective refrigeration work, the superheating to be done in the exchanger; (2) reduce flash gas in the liquid line by precooling in the exchanger; (3) reduce the work done at the inlet of the evaporator by reducing high temperature liquid to a point nearer the temperature of the refrigerant within the evaporator.

"Heat exchangers also were 'prescribed' for drying up frosting or sweating suction lines.

"Another cure for which the heat exchanger is considered 'a specific' is for superheating suction lines sufficiently to prevent liquid from entering the compressor and scrubbing the oil therefrom.

"To be sure, heat exchangers, if properly applied, do very successfully cure or relieve these and other chronic ailments. However, their true value lies far beyond being a 'cure-all.'

"It also should be noted that there are certain limits beyond which no heat exchanger, or any other accessory, can be expected to go in making an undersized or otherwise poorly designed refrigerating system do the work expected of one which is properly sized and designed.

Case No.	Calorimeter Evaporator Temperature	Temperature of Vapor Entering Compressor	B.t.u. per Hr. Output of Compressor	% Difference Loss or Gain
1	90.0° F.	89.0° F.	4,510	2/1: 3,890 / 4,510 = 15% loss
2	40.5° F.	91.0° F.	3,890	3/1: Negligible
3	40.6° F.	95.5° F.	4,495	2/4: In favor of (4) slightly
4	41.1° F.	43.0° F.	4,000	

HEAT EXCHANGERS VS. EXPANSION VALVE OPERATION

"The majority of thermostatic expansion valves are factory adjusted to operate on a 10° superheat; i.e., 10° higher temperature at the point where the bulb is attached than the temperature at the evaporator inlet. They may be successfully operated at a superheat slightly less than 10° F., but it should be remembered that, for example, with a 40° F. average evaporator temperature a 4° temperature variation on the charge ('Freon-12') within the bulb is required to create sufficient pressure upon the diaphragm within the power element to cause the valve to completely open and/or close.

"This fact tends to establish the basic reason for the almost universal 10° superheat seating. The sensitivity (ability to regulate or control) of a 'Freon-12' diaphragm type thermostatic expansion valve decreases in almost direct relation to the amount the superheat seating is reduced below 10°—to a point assumed to be somewhere around 5° or 6°, where the sensitivity becomes nil.

"Because of the effect upon the operation of the expansion valve, it becomes obvious that poor control may be expected, if, after installing a heat exchanger, the superheat setting of the valve is decreased much below 10° F. for the purpose of forcing additional liquid refrigerant through the evaporator.

"It is a well established fact that a properly installed heat exchanger of the proper capacity will result in an overall increase in system capacity (B.t.u. per watt hour) of 15%.

"The increase in capacity is a result of several closely related conditions.

EFFECT OF SUCTION GAS TEMPERATURE UPON SYSTEM CAPACITY

"It has been proved by reliable experiment that any heat picked up from the atmosphere by the suction gas from the evaporator to the compressor results directly in an increased load upon the condensing unit, and consequently a **decrease** in the system capacity. By the same token, it is well established that condensing unit, hence system capacity, **increases** with an increase in entering suction gas temperature.

"Since it is desirable to deliver high temperature suction gas to the compressor, and undesirable to heat suction gas from the atmosphere, it follows that suction gas temperatures should be increased to room temperature immediately upon leaving the evaporator by means of a heat exchanger.

"It is reasonable to wonder why the manner in which the suction gas is heated makes a difference—so long as it is heated. There is a difference, however. Heating the suction gas at the outlet of the evaporator by means of a suction-liquid line heat exchanger results in a reduction of entering liquid temperature and flash gas, hence an improvement in the quality of the liquid. The net result is an average overall capacity increase of 15%.

"Here are some very interesting figures taken from a paper prepared by David Crampton, Koolerkeg Division, Wallace & Tiernan Co., and published in the December, 1940 issue of 'Refrigerating Engineering':

* * *

REMARKS:

Case 1—90° F. Calorimeter—All superheating done in calorimeter.

Case 2—40.5° F. Calorimeter—Superheating done in suction line.

Case 3—40.6° F. Calorimeter—Superheating in heat exchanger.

Case 4—41.1° F. Calorimeter—Insulated suction line.

"In Case 1 the gas was fully superheated in the calorimeter, therefore did not pick up heat enroute to the compressor—an ideal condition.

"In Case 2 the suction gas picked up sufficient heat from 40.5° F. calorimeter to compressor (91°) to impose sufficient extra load upon the condensing unit to **decrease** the B.t.u. per hour capacity approximately 15%.

"In Case 3 the calorimeter was 40.6, but a heat exchanger was used to increase the suction gas temperature to 95.5, and the B.t.u. per hour jumped back to nearly 4,500, as in Case 1.

"In Case 4 no heat exchanger was used, and the suction line was insulated to preclude the possibility of the suction gas picking up appreciable heat from the room. The B.t.u. per hour capacity came out at 4,000, which proves rather conclusively that it is better to deliver low temperature suction gas to the compressor than to allow the suction gas to pick up heat from the room.

HEAT EXCHANGERS IN HIGH TEMPERATURE SYSTEMS

"In general refrigeration practice we are concerned principally with two general heat exchanger applications—high to intermediate, or low temperature refrigeration systems. In high or intermediate temperature applications, there is a sufficient split between refrigerant (evaporator) temperature and air temperature to result in ample superheating within the evaporator to provide the 10° necessary to successfully operate the expansion valve.

"The thermo bulb should be installed between the evaporator and the heat exchanger; the heat exchanger to increase capacity by heating suction gas to near room temperature and improve the quality of the liquid.

"In all applications except low temperature, the prime purpose of the heat exchanger is to heat suction gas temperature to room temperature to make impossible the picking up of room heat by the suction gas.

HEAT EXCHANGERS IN LOW TEMPERATURE SYSTEMS

"Low temperature refrigeration presents additional problems, however, for here we have a very small split between refrigerant (evaporator) and air or brine temperature, insufficient in most cases to provide the 10° superheat necessary to result in proper operation of the expansion valve.

"Thus a very substantial amount of the evaporator may be starved, whereas if the expansion valve could be made to operate as it does in higher temperature applications, where the temperature split is greater, 95% or more of the evaporator may be put to active work. Here the problem of controlling the refrigerant flow must be dealt with.

"Let us consider briefly what is

(Concluded on Page 25, Column 1)

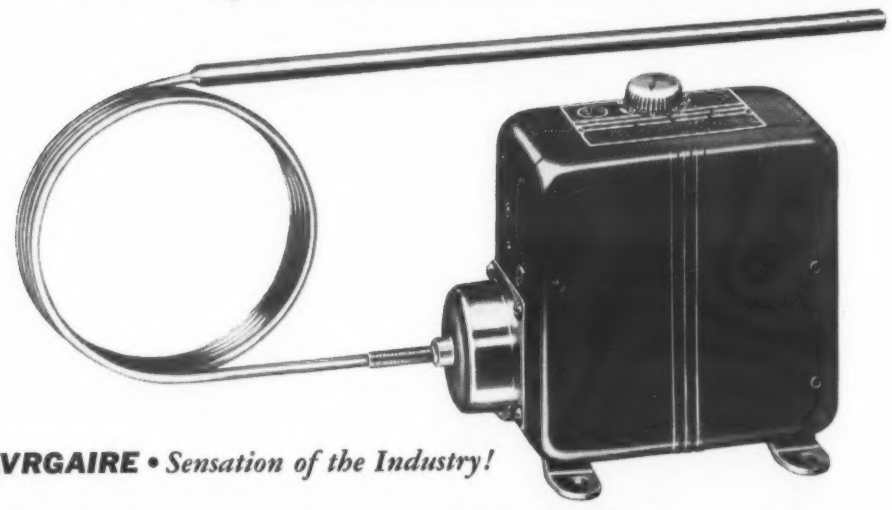
Again in 1942 Depend on Penn

Refrigeration and Air Conditioning are vital to the nation's well-being and safety. For the efficient operation of both, you can again depend on Penn Automatic Controls.

Food is one of the most important sinews of war. And to conserve America's food supply requires mechanical refrigeration—in warehouses, commissaries, stores and markets, as well as in homes.

In scores of industries, now turning out war materials, air conditioning is—not a mere luxury for comfort—but a vital necessity upon which the production processes themselves depend.

Whatever your need in refrigeration controls...choose the exact type to fit the job from Penn's complete line. And in the face of extraordinary demands on our facilities, we shall bend every effort to keep deliveries and service as nearly normal as possible.



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PENN CONTROLS

REFRIGERATION, AIR CONDITIONING, ENGINE, HEATING, PUMPING AND AIR COMPRESSOR

Heat Exchangers Are Useful In Various Applications By Improving Efficiency

(Concluded from Page 24, Column 5)

required to make the expansion valve operate properly, i.e., open fully to provide full flow capacity and close tightly to prevent slop-overs.

"With a 'Freon-12' valve at 40° F. bulb temperature, 10° superheat setting, a 4° change in bulb temperature is required to effect the 4.2 pound pressure change upon the diaphragm required to operate the valve through a full stroke.

"However, with a 0° evaporator and 10° superheat, a 4° temperature change at the bulb results in only a 2.4 pound pressure change on the diaphragm, and the valve opens only about 43% of full. Hence a 43% reduction in valve capacity. It becomes obvious then that the evaporator is starved, and even so the valve is not sensitive.

"One way of patching up a situation of this nature is to install a large accumulator at the evaporator outlet, open the valve wide to force liquid through the entire coil and let it slop over into the accumulator. The trouble is, the valve can't and won't close during the 'off' cycle, and there is trouble when the machine starts a new cycle.

"A more intelligent approach to the problem would be to find a 40° location for the thermo bulb, reset the valve to 10° superheat, and permit it to operate normally, as it was designed to do.

"The 40° location would be at some predetermined point on a heat exchanger, in which case the heat of the liquid via the suction gas and heat exchanger wall provides the higher temperature necessary to operate the valve at full capacity, yet allow for the sensitivity necessary for close control, and the evaporator goes back to doing useful work, often with an increase in system capacity of 50% or more.

"The following figures show approximately the effect upon expansion valve capacity by various temperatures at the bulb location:

40°	20°	5°	—10°	—25°
100%	80%	5.4%	3.5%	2.5%

"Thus the principal purpose of a heat exchanger on low temperature systems is to provide a higher temperature location for the thermo bulb, so the valve can work at full capacity.

ADDITIONAL HEAT EXCHANGER APPLICATIONS

"Capacity of flooded liquid coolers of the shell and tube type may also be substantially increased by utilizing a suction-liquid line heat exchanger for providing the superheat necessary to operate the thermo valve, instead of using much of the surface of the cooler for picking up superheat.

"Another interesting and successful application of standard heat exchangers is between the compressor and condenser on air-cooled condensing units. In this application water, controlled by a common water valve, is passed through the exchanger to assist the air-cooled condenser under peak load conditions. When, under normal conditions, the air-cooled condenser has sufficient heat dissipating capacity to keep the operating head pressure down to normal, the water valve will stop the flow to the exchanger, holding water consumption to a minimum.

SELECTION OF HEAT EXCHANGERS

"The size and capacity of a heat exchanger for any given application depends upon (1) the average evaporator temperature which determines the temperature of the suction gas entering the exchanger, and (2) the size of liquid and suction lines involved. While the temperature at which the liquid refrigerant enters the exchanger has a direct effect upon its capacity, average conditions have been assumed in establishing ratings.

"Assuming an average entering liquid temperature, and remembering that it is desired to increase leaving suction gas temperature to or above maximum room temperature, it becomes obvious that the lower the temperature of the gas entering the exchanger, the more work will be required to heat the leaving gas to room temperature. For example, gas entering at 40° F. to be heated to 90° F., must pick up 50° F. in the exchanger, whereas gas entering at —10° F. to be heated to 90° F. must pick up 100° F.—twice as much.

"Consequently, an exchanger having more capacity is required for a given size low temperature job. As an example, our company rates its '1-ton' heat exchanger as follows:

* * *

	Evaporator Temperature (Average)				
	35° F.	20° F.	10° F.	0° F.	—15° F.
B.t.u. Per Hour Capacity of Evaporator Circuit	16,500	12,000	9,725	7,875	5,750

* * *

"This does not mean that the heat exchanger has a heat exchange capacity of 12,000 B.t.u. per hour at 20° evaporator temperature, and 5,750 at —15° evaporator, etc. It does mean that under normal entering liquid temperature conditions, our so-called '1-ton' heat exchanger will, if properly installed at the outlet of a 20° F.-12,000 B.t.u. per hour evaporator, provide sufficient heat exchange capacity to heat the suction gas from 20° F. to within 20° to 25° of entering liquid temperature, and in so doing, improve the quality of the liquid and increase system capacity by a minimum of 15%.

"Because pressure drop through heat exchangers must be considered, it is recommended that the liquid and suction connections on the exchanger always be equal to or larger (never smaller) than the size of the lines attached thereto; this for the reason that most manufacturers provide areas through their heat exchangers which are equal to or slightly in excess of the areas of the tubing which the connections will accommodate.

"Using care in matching connection sizes with line sizes will insure a minimum of pressure drop and a maximum of heat exchanger capacity."

Book Outlines Welding

NEW YORK CITY — To help welders determine what will make the best and most economical weld for a particular metal under various circumstances, Air Reduction here has published a 55-page book entitled "Welding Procedures."

Metals are grouped alphabetically under headings such as aluminum, die cast metals, malleable iron, steel, wrought iron, etc. For each analysis of each metal, the booklet suggests recommended process, filler rod, and special technique to produce the best welding job.

Besides recommending the best filler metals to be used for each process, the book describes specialized oxyacetylene and electric arc welding techniques not commonly known. In an appendix data is given for the calculation of electrode and gas welding rod consumption for different types of welds. There are also 10 removable record sheets for tabulating cost data and other pertinent information to determine the best welding method.

The Service Man's Notebook

By Henry Kronke

The following tables give some general cut-in and cut-out pressures for low pressure controls used on various types of refrigeration coils. A pressure drop of 2 lbs. gauge has been included in the cut-out pressure.

Since the same size coil in different installations will be subject to different loads, it is obvious that the recommended pressure cannot be correct in every case. They are presented here only as a guide and the resultant temperature should always be checked.

PRESSURE SWITCH SETTINGS FOR FIN COILS

Temperature Required	"Freon-12"	Methyl Chloride	Sulphur Dioxide
35°	32 lbs.—13 lbs.	23½ lbs.— 7 lbs.	9 lbs.— 6 in.
38°	33 lbs.—15 lbs.	25 lbs.— 9 lbs.	10 lbs.— 4 in.
40°	33 lbs.—16 lbs.	25 lbs.—10 lbs.	10 lbs.— 3 in.
42°	34 lbs.—17 lbs.	26 lbs.—11 lbs.	11 lbs.— 1 in.
45°	35 lbs.—19 lbs.	27 lbs.—12 lbs.	11 lbs.— 0 lbs.
50°	40 lbs.—23 lbs.	31 lbs.—15 lbs.	14 lbs.— 3 lbs.
55°	45 lbs.—24 lbs.	35 lbs.—16 lbs.	18 lbs.— 3 lbs.
60°	49 lbs.—27 lbs.	39 lbs.—19 lbs.	21 lbs.— 5 lbs.
65°	56 lbs.—31 lbs.	45 lbs.—22 lbs.	25 lbs.— 8 lbs.
70°	61 lbs.—35 lbs.	50 lbs.—26 lbs.	28 lbs.—10 lbs.

PRESSURE SWITCH SETTINGS FOR BLOWER COILS

Temperature Required	"Freon-12"	Methyl Chloride	Sulphur Dioxide
35°	31 lbs.—17 lbs.	23 lbs.—11 lbs.	9 lbs.— 0 lbs.
38°	32 lbs.—19 lbs.	24 lbs.—12 lbs.	10 lbs.—½ lb.
40°	33 lbs.—21 lbs.	25 lbs.—14 lbs.	10 lbs.— 2 lbs.
42°	35 lbs.—22 lbs.	26 lbs.—15 lbs.	11 lbs.— 3 lbs.
45°	38 lbs.—24 lbs.	29 lbs.—17 lbs.	13 lbs.— 4 lbs.
50°	43 lbs.—28 lbs.	33 lbs.—20 lbs.	16 lbs.— 6 lbs.
55°	47 lbs.—33 lbs.	38 lbs.—24 lbs.	19 lbs.— 9 lbs.
60°	53 lbs.—37 lbs.	43 lbs.—28 lbs.	23 lbs.—12 lbs.
65°	59 lbs.—42 lbs.	48 lbs.—32 lbs.	27 lbs.—15 lbs.
70°	65 lbs.—47 lbs.	54 lbs.—37 lbs.	31 lbs.—19 lbs.

Sailors like sodas too!

A UNIFORM doesn't change a young man's taste, he still likes the things he enjoyed at home. Both the Army and Navy know this, and to maintain a high standard of morale they are serving their men the food they like.

To help them do this the Tecumseh Products Company has been called upon to manufacture thousands of refrigeration units for all branches of the service. These defense orders are demanding a share of our production, *but we are still manufacturing units and parts for civilian needs and are making deliveries as rapidly as materials are available.*

Tecumseh Products Company, in addition to defense orders for refrigeration units, has also gone "all out" on the manufacture of vital defense necessities and are doubling and redoubling their production of essential material for the Army and Navy.

Our engineering department is maintaining the high quality of Chieftain products in all cases and wherever alternate materials are required, every effort is extended to preserve the same high quality.

TECUMSEH PRODUCTS COMPANY MICHIGAN

TECUMSEH Chieftain

100 Calls a Day Easy For Big Service Firm

35 Servicemen Are Employed By St. Louis Concern In Its New Shops and Offices

ST. LOUIS — More than 12,000 square feet of space split up into individual shops for "mass production" of refrigeration service work is the outstanding feature of the new shops and offices which City Refrigeration Service Co., largest refrigeration service firm in Missouri, has opened here at 4739 McPherson St.

The firm was originally located at 4633 Delmar Blvd., starting out in 1936 with four mechanics and a small one-room store. Two years later, adding commercial service, James A. Daniels, owner, took over a neighboring store, and increased his staff to nine. Now, setting up a building specifically designed for a combination of reconditioning work and commercial service with domestic appliance repair and parts sales, City Refrigeration Service has quadrupled its original size, and employs 35 service and shop mechanics. Sixteen men work on household refrigeration, 12 on commercial service, two on electric range repairs, and the rest on the telephone desk, machine shop, paint shop, parts room counter, and warehouse.

Mr. Daniels spent several months in locating a building of sufficient size and arrangement to allow him to set up the exact facilities he wanted. Result is a building split into five major departments, operating on a factory-assembly-line precision basis indispensable to City's huge service volume—which during last summer amounted to as many as 3,000 service calls in 30 days.

In the front of the two-story building is the office, which has two desks for service supervisors, and two incoming trunk lines per desk. Here also is Mr. Daniels' office, a display room, and secretarial office. Connecting with the front office through a large window is the parts room.

All parts, which formerly wound up in an intricate mess within a few weeks, are now arranged into a simple inventory system, classified either by the name of the manufacturer or the type of part. Everything except belts is stocked on tiers of metal shelving side by side down the center of the parts room. One five-shelf rack contains new motors, another used motors, a third direct-current motors, a fourth pumps, and three more small parts, all kept in small wooden boxes divided into three sections, and identified by code numbers.

A serviceman needing an expansion valve locates it on the parts room chart hung on the wall, which gives the number of the box and the section containing the correct manufacturer's product. Also stocked are all parts for nine refrigeration manufacturers for whom City is authorized service dealer. No perpetual inventory is being kept because of the quick turnover of delivered parts and those used by servicemen. However, small parts in each box are automatically reordered when reaching a minimum low.

Belts, formerly a headache, have been put on a stock system developed by Mr. Daniels. The wooden wall of the stock room is covered with rows of hooks to the ceiling, numbered from 1 to 200, with numbers stenciled below each hook. Two hundred sizes of belts for all types of commercial and household units are stocked here, with location of the proper size made easy by a reference booklet made up by City's buying office. In the rear of the parts room are stocks of refrigerant gas, copper tubing, and electrical equipment.

Center room is a warehouse for storage of refrigerators awaiting reconditioning, used ice cream units purchased for a continual inventory of replacement units, and heavy stock.

At the right rear is a machine shop, in the center a "test-line" room, and on the left, the cabinet room, including paint shop, electric bake oven, and tools for refinishing all appliance metals.

The machine shop purposely is kept clear of cabinets and bulky objects. For example, when a used refrigerator comes in (City does all work for four large dealerships), it is torn down in the test room, unit going to the machine shop for overhauling, cabinet to the paint shop room.

All equipment for each job is separately located, so that the machine shop is always able to work on refrigeration units without interruption, as does the paint shop on cabinets. The three rear rooms together work as an assembly line. From six to eight cabinets are painted per day, and enamel baked on in the electric oven every night. After inspection, cabinets are shoved into the center room, where units are added, and the refrigerators are put on the test line at the left wall for a 24-hour operation test.

Truck dock is immediately to the rear of the test line, so that ice cream cabinets, refrigerators, compressors, etc., can be loaded from the test section into the truck. City is rebuilding approximately 300 refrigerators a year for dealers; sells no equipment, and doesn't compete with its customers. No dealer commissions are allowed, and the company doesn't pay dealers for tips.

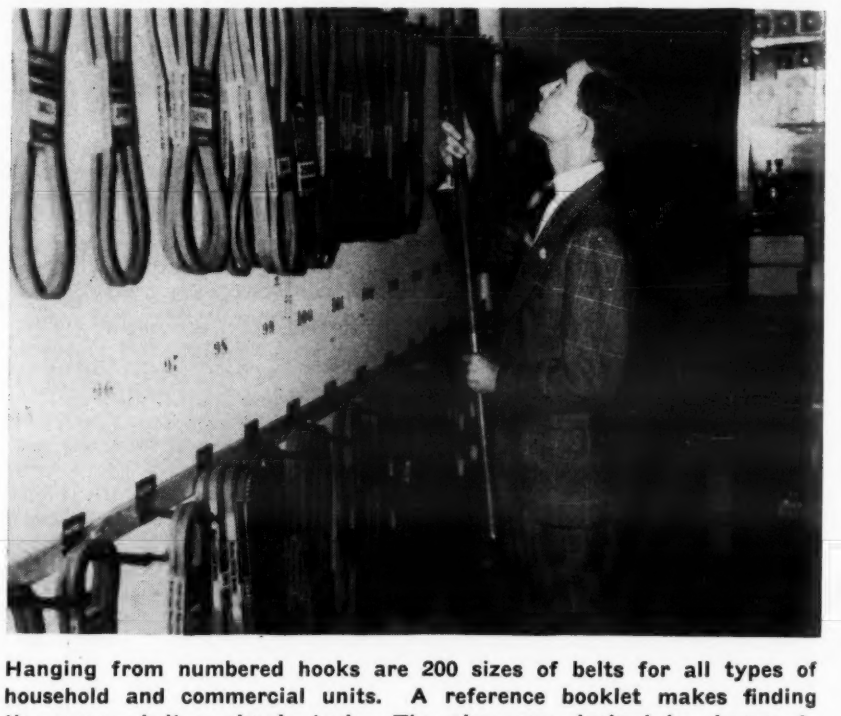
Included in City's service facilities is 24-hour service through a telephone answering agency, with two men on duty all night during the summer months, one during the winter. Available for special class meetings of dealers and salesmen, training, etc., is a 60 x 30-foot room on the second floor, which Mr. Daniels plans to offer to customers for any use they may wish to make of it.

Space on the first floor is provided for a "hot-shot" emergency truck equipped with complete parts and supplies for repairing commercial and domestic refrigeration or air conditioning.

The company handles authorized refrigerator repair for nine leading manufacturers, two range lines, maintenance service for a large dairy with 900 cabinet stops, air conditioning and commercial service.

System Speeds Up Service

City Refrigeration Service Co. stores its stock systematically to reduce time wasted in looking for a certain item. Above are shelves of motors, grouped according to type.



Hanging from numbered hooks are 200 sizes of belts for all types of household and commercial units. A reference booklet makes finding the proper belt a simple task. The plan was devised by James A. Daniels, owner of the service firm.

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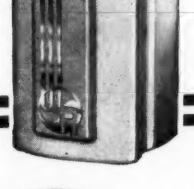
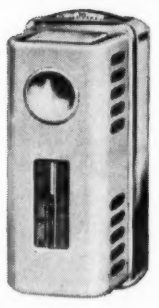
★TWO WAYS *for Offense!*



★SAVE FOOD

Our nation's food supply is an important factor in the present conflict. That's why the refrigeration industry must spare no effort to preserve vital supplies of perishable foods — both for ourselves and for our allies.

Your contribution to this program is essential — and can be made effective to the highest degree by enlisting the accurate performance, long life and trouble-free switch operation of White-Rodgers Hydraulic-Action Refrigeration Controls.



★ SAVE MAN-HOURS

The demand on the home front as well as on the war front calls upon every industry to conserve skilled man-power. You, as a refrigeration man, can save man-hours for your business by seeking more efficient installation methods and equipment.

White-Rodgers uniformly-calibrated easy-to-read dials save time by eliminating guess-work and repeated gauge-testing. A quick twist of the screwdriver and desired cut-in and cut-out temperatures and pressures are instantly obtained. Convenient knockouts and simplified wiring and mounting facilities result in neat, speedy installations.

Find out what White-Rodgers Controls can do for your business by writing today for your copy of the White-Rodgers Refrigeration Control Catalog.

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S-W Ends Radios; Other Mfrs. May Drop Some Lines

NEW YORK CITY — Voluntary abandonment by manufacturers of appliances of some of their less active products, together with a possible consolidation of operations of leading items to forestall a government boom, was discussed as a "definite possibility" in an article in the business section of a recent issue of "The New York Times."

As one indication, says the article, Stewart-Warner Corp. has informed distributors and dealers that while it would deliver radios contracted for during the first quarter of 1942, it was abandoning production of receivers.

WOULD CONCENTRATE

"If this trend were followed out logically throughout industry, production of certain items would be concentrated in companies that are the acknowledged leaders," says the "Times."

"In recent years there has been a veering toward diversification in the industry, with manufacturers aiming to carry a full line, so that they could tie up dealers under exclusive franchises.

"This resulted in companies rating highly on certain products and poorly in others. For example, a company might be No. 3 in refrigerator sales, No. 1 in laundry equipment, No. 10 in vacuum cleaners, and No. 15 in radios.

DROP POOR SELLERS

"No one company enjoys leadership in all the products it handles. Thus, some of the largest companies in the country—large because of the number of items they handle—frequently have to yield leadership to a small concern which specializes in one product.

"This plan of lopping off the poor sellers and more or less yielding the business in a particular item to the company or companies that enjoy leadership in a product might be a substitute for the English scheme of concentrating production of certain items, normally spread over a dozen or two dozen plants, in one or two factories, with each company credited with a certain share.

"While apparently this scheme has worked out well in Great Britain, there would be considerable objection to it here, because of the emphasis on trade names. Reports emanating from Washington indicate that some consideration is being given by OPM officials to the British theme.

PLAN'S ADVANTAGES

"There would be certain advantages from a production standpoint of concentrating on a smaller number of products in each plant. Allocation of materials would be simplified if a company were manufacturing only its three leading items, for example, instead of a half-dozen to a dozen. Smaller companies, which concentrate on only one or two items, in which they are leaders, would be bolstered if they were able to get some materials which normally would go to their competitors.

"Probably under the plan the biggest companies would be the chief sufferers, but as they are the ones most fitted to turn to war work, the burden on them would be relatively lighter than on smaller concerns.

"As a somewhat similar development, manufacturers of consumers durable goods, faced with sharp curtailment, are definitely concentrating production on their largest and most expensive lines, to prevent as sharp a reduction in dollar volume as in unit sales."

New Dealership Formed In Rochester, N. Y.

ROCHESTER, N. Y.—Wilkinson-Ruby, Inc. has been set up at St. Paul and Franklin Sts. here as a dealer for Philco, handling in addition ranges, laundry equipment, and furniture. Five salesmen are employed by the new firm, which was established by Frank Ruby, formerly a furniture merchandise man at Macy's department store and the C. W. Bauman Co. in New York City, and George Wilkinson, former store operator.

Norge's 7-Model Line For 1942 Is Designed For 'Eye-Appeal'

. . . Plastics Are Widely Used In New Line Of Refrigerators

(Concluded from Page 1)

important place this year, because its action in regularly and systematically defrosting the freezer makes for efficient operation, a point stressed in a recent government defense bulletin.

Night-Watch defrosting requires no attention excepting at weekly intervals when accumulated defrost moisture is emptied from the pitcher-like Handefroster. Covered Coldpack construction eliminates use of the cold meat drawer as a defrosting tray. A shallow defroster tray, suspended under the bottom of the freezer unit, carries defrost moisture directly to the Handefroster. Coldpack, Handefroster, and defrost tray, functioning together, avoid necessity of moving food during defrosting.

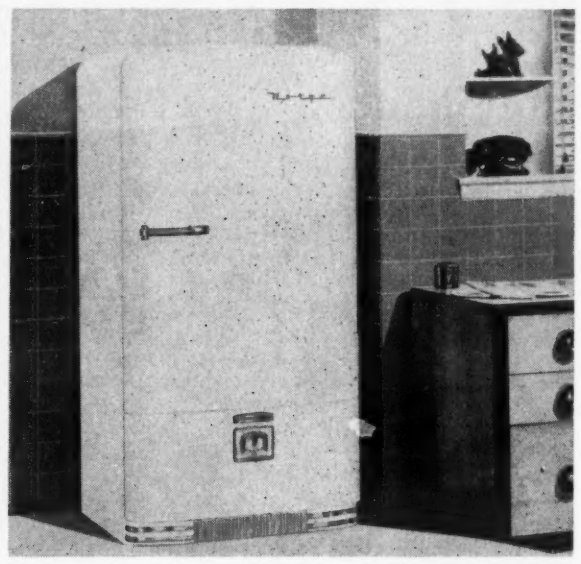
The "safety-sealed" freezer is said to prevent accumulation of frost in that unit, and allows defrosting action to take place without permitting defrost water to drip into ice trays.

BASE LEVELLER ADDED

Another useful 1942 feature is the new base leveller which allows the unit to be levelled off despite irregularities of the floor on which it may be placed.

Eye-appeal is claimed as a leading merit of the 1942 Norge line. Use of plastics has gone far to create the new effects. The flowing lines of the Norge nameplate, executed in antique-gold shade of a new and sturdy plastic, sets off the white Norgloss finish. The same shade is used on the plastic door-opener, the handle of the dry-storage bin, and the trim-band and clock face of the Night-Watch.

The covered Coldpack is in crystal glass for new beauty, has been made larger to provide greater storage space. Increase in capacity has been provided in the freezer, to accommodate larger supplies of frozen foods, desserts, etc.



Capacity has been engineered into 1942 Norge refrigerators with the placing of bottle-high shelves next to freezer, enlarged Coldpack, deeper hydrovoir, and huge dry-storage bin. Accentuating the white Norgloss finish, a shade of antique-gold has been used effectively on nameplate, Lazilatch door handle, trim of dry storage bin, and rim and face of Night-Watch automatic defroster clock, as shown at the right.

The full-glass-covered Hydrovoir has also been deepened to increase capacity.

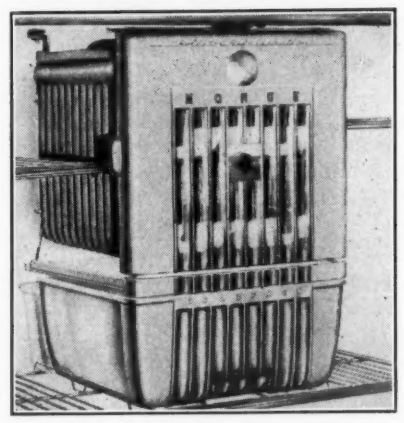
"Face" of the Night-Watch clock has been redesigned to give it strong feminine appeal, yet maintain a quick-glance readability.

From the fluted, transparent door of the sealed freezer to the flowing lines of trim on the face of the covered Hydrovoir, plastics have replaced metal in interiors of the new model. Particularly ingenious is the use of a plastic "bullseye" in the top center of the freezer door. The bullseye is a strong magnifier and allows easy reading of the cold control setting without opening the freezer door.

Spotless white is the keynote of the interior, with white easy-out ice trays and, in Night-Watch models, white acid-resisting shelves which replace the conventional "tin-dip" of former years.

Chief among mechanical features is the Rollator cold-maker, pioneer of the rotary principle for compressors, which now incorporates such refinements of design as the "Motor-Cooler," which provides a flowing band of refrigerant, thermostatically controlled, to keep the motor of the sealed unit from overheating and guard against breakdown of coils and windings.

Norge Bullseye



Magnifying Bullseye in the top of Norge's new plastic sealed-freezer door makes the setting of the cold control easy to read; ice trays are visible through fluted transparent front of door.

Substitute Lines Added By 2 Distributors

ST. LOUIS—To help dealers who are searching for new lines to take up the slack in sales volume caused by curtailment of appliance production, two distributors here have taken on "substitute" merchandise.

Artophone Corp., Philco distributor, is now offering dealers lines of sun lamps and coal-gas heaters, both of which are expected to fit in well with dealers' present winter sales promotion plans. Herbert Schiele is president of the distributorship.

As an aid to dealers who are turning to furniture as a sideline, Congoleum-Nairn linoleum has been added by Mayflower Sales Co., Norge distributor. This product will be distributed throughout the firm's territory of eastern Missouri and western and southern Illinois. The line will include wall linoleum for kitchen and bathroom remodeling, and will be managed by Paul Wetherbee, formerly with the Congoleum Corp. Mayflower is planning sidelines to keep its men working all year.

ALL OUT FOR VICTORY

HERE'S A HOT TIP ON THE COLD TRUTH

BUSH SCORES AGAIN

Bush products are specified by the Army, Navy, Air Force and Merchant Marine to meet literally hundreds of cooling and air conditioning requirements. Bush products are doing their part to build and maintain the health and efficiency of our armed forces . . . doing their part to build the will and ability to WIN THE WAR!

And with our civilian army the story is the same. To this vast civilian army . . . our source of money and munitions . . . the health and efficiency of modern refrigeration is also vital. Bush products have pioneered the commercial cooling industry.

It is no accident that many of the most notable developments in refrigeration have come out of the Bush Laboratory . . . have been introduced by the Bush Organization.

ALL vital needs for Bush products, both military and civil, must continue to be served . . . to the limits of our abilities. And our abilities, like those of all good Americans, are ALL OUT FOR VICTORY!

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BRANCH FACTORY
610 N. OAKLEY BLVD. CHICAGO, ILL.

Bush Mfg. Co.

Periodic General Overhauling of Motors Will Avoid Breakdowns & Prolong Life

Maintenance

Editor's Note: To help service men become better informed on electric motors, the NEWS is publishing a series of articles written by R. A. Fuller of General Electric Co.'s industrial engineering department. These articles, of which the following is the thirteenth, discuss fundamentals of various types of motors, particularly those used in refrigeration and air conditioning equipment. Future instalments will describe the servicing of motors.

By R. A. Fuller,
Industrial Engineering Dept.,
General Electric Co.

General Overhaul

Air conditioning and refrigeration equipment is not generally given a thorough overhauling at intervals of five years or so. A general overhauling should be beneficial in avoiding breakdowns and in extending the useful life of the equipment. Where periodic overhauling is practiced the following notes may be helpful.

The motor air gap, between the rotor and stator, is checked with feelers for uniformity. Small clearance at the bottom may indicate worn bearings. The motor is taken apart and inspected thoroughly. Measurement of the bearings and journals may indicate need for new bearing linings. The waste is removed from waste packed bearings and rearranged, or replaced, so that any glaze on the wool is removed from its point of contact with the shaft. Any gummy deposit on the wool indicates that the wool should be replaced. All lubricant should be cleaned out of the bearings and a fresh supply put in when the motor is reassembled.

Carbon tetrachloride, or any of the several available non-explosive cleaning solvents, should be used in cleaning the rotor and stator to avoid explosion and fire hazards. Note particularly that these solvents are heavier than air so that there is danger of suffocation to men using them. They should be used in the open air or where there is exceptionally good ventilation.

The rotors should be cleaned with a solvent to remove any accumulated dirt, after which any rust should be removed with fine sandpaper (not emery paper). When clean and dry, the rotors should be coated with a good grade of clear varnish or lacquer to protect them from moisture. To prevent injury to the bearings, they should be completely protected with a clean rag when the motor is disassembled.

The rotors of wound-rotor motors should be given the same treatment as the stators. In addition, soldered joints and binding cords should be inspected and any weakness remedied. Commutators should be turned down and the insulation between segments cut back, with a narrow hack saw blade or file, to a depth of approximately 0.020 inch.

The stator bore should be cleaned of dirt with a solvent, and any rust should be removed with fine sandpaper (not emery paper). Care should be taken during this operation not to damage the top sticks or end turns of the stator winding. When dry, any remaining dirt in the bore should be wiped out with a cloth or brushed out with a soft brush. A hand bellows or dry compressed air at low pressure (25 to 50 lbs.) may be used, but care should be exercised not to blow dirt or chips into the stator winding.

The windings should be brushed free of dust, using a soft bristle brush, and then washed with a cloth or brush wet with carbon tetrachloride. Since carbon tetrachloride is very volatile, it will not injure the insulation if not applied too generously.

Dry the winding by one of the following methods:

1. Place the stator in an oven and bake at a temperature not exceeding 90° C.

2. Enclose the motor with canvas, a card board carton, or other covering, leaving a hole at the top to permit moisture to escape. Insert heating units or lamps to raise the temperature of the air within the enclosure to not more than 90° C.

3. Pass current at low voltage through the stator windings. Increase the value of the current gradually until the winding temperature, as measured by a thermometer, reaches 90° C. DO NOT EXCEED THIS TEMPERATURE.

Drying should proceed until the insulation resistance becomes practically constant. There are many ways of measuring insulation resistance, and any equipment available can be used if care is taken not to apply too high a voltage to the winding.

A megohmmeter provides the easiest method of reading insulation resistance but if one is not available the voltmeter method can be used. Two "B" batteries in series with a 150-volt voltmeter will be safe for taking readings of any windings and will provide a testing current free from any ground. If a ground exists, it lacks power to do any damage.

Connect the two batteries in series. Connect one side of the batteries to the frame of the stator, making sure to have good contact with bare metal. Connect the other side of the batteries to the voltmeter. Touch the free lead of the voltmeter to the point where the battery is connected to the frame. Call this reading E. Next, touch the free lead to one of the motor terminals and call this reading E_1. The insulation resistance

$$R = R_1 \left\{ \frac{E}{E_1} - 1 \right\}$$

where R_1 is the resistance of the voltmeter. The voltmeter resistance is usually given inside the meter cover.

The insulation resistance in megohms must be greater than

$$R = \frac{\text{Rated Voltage}}{\frac{0.75 \times \text{hp.}}{100} + 1{,}000}$$

For practical purposes this becomes 0.2 megohms for 220-volt motors, 0.4 for 440-volt motors, and 0.5 for 550-volt motors.

After the winding is free from moisture, and while warm, a high-grade insulation varnish should be applied, either by spraying or brushing, or preferably dipping if possible. The stator bore should also be given a coat of varnish or lacquer to protect it from moisture. The stator leads, especially the section from the conduit box to the winding, should be treated with insulating varnish.

Bake the varnished stators for 6 or 7 hours at a temperature not exceeding 90° C., or merely allow the winding to dry at room temperature if a quick and air-drying varnish has been used. More than one coat of varnish may be required, depending on the condition of the winding.

Before reassembling, clean any rusted parts thoroughly and paint them. It is often desirable to repaint the whole motor after it has been reassembled.

When reassembling a ball bearing motor, any V-grooves found in the bearing housing lip should be filled with fibrous, high-temperature sealing grease which will act as an additional protective seal against the entrance of dirt or foreign material. It is desirable to run the motor with the relief plugs removed from the bearing caps for about one-half hour to allow any excess grease to be forced from the bearings.

The bearing housing and lining of a sleeve bearing motor should be completely dried, and before the end shield is assembled on the motor, the shaft journal should be covered with a film of lubricating oil.

Be sure that the rotor turns freely when disconnected from the load, and that it does not rub either on the stator laminations or on any foreign material in the air gap. Before placing the motor in service it is desirable to operate it without load long enough to determine that there is no unusual localized heating, and to check for the proper rotation.

(To Be Continued)

Correction

Editor's Note: Due to an error, the following section on "Reversing Rotation" was omitted from the series of articles on installation of motors which appeared in the Dec. 24 issue of the NEWS. This section should have been inserted directly ahead of Fig. 51, and consequently the lines beneath Fig. 51 were wrong as originally written. Corrected lines for this illustration appear at right.

Reversing Rotation

Single phase repulsion start motors are reversed by shifting the brushes, originally connecting A and B in Fig. 42, so that C and D are connected. The "C" shaped cores exchange their functions of generating current in the rotor winding and developing rotational force. This is usually done by loosening screws in the end shield and rotating the whole brush assembly.

Initially a mark on the brush assembly may be lined up with a mark on the end shield. When the brush assembly is rotated another mark is usually found on the brush assembly or end shield, which should be lined up with the mark on the other part. After such shifting of the brushes it is advisable to start the motor without load to observe the operation.

On brush raising types of motors observe particularly the operation at the time when the brushes are raised. This should be at approximately three-quarters of the full speed of the motor and the action should be without any signs of sluggishness. If the action does not seem satisfactory a slight change in the brush setting may improve it.

Single phase capacitor and split phase motors are reversed by reversing the connections to one of the windings, that is, by reversing the connections to the starting winding or those to the running winding. This is usually done in the motor conduit box or at a special terminal board on the motor.

If a connection diagram is not available it will often be possible, by removing one or both end shields, to check the internal wiring of the motor against the fundamental diagrams, Figs. 34, 38, 39, and 40, and thus determine on a way of reversing one of the windings.

Fig. 51—Wiring Details

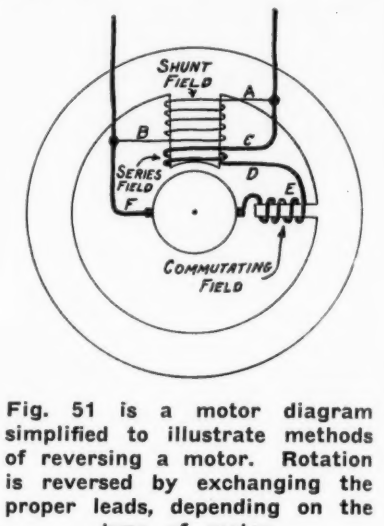


Fig. 51 is a motor diagram simplified to illustrate methods of reversing a motor. Rotation is reversed by exchanging the proper leads, depending on the type of motor.

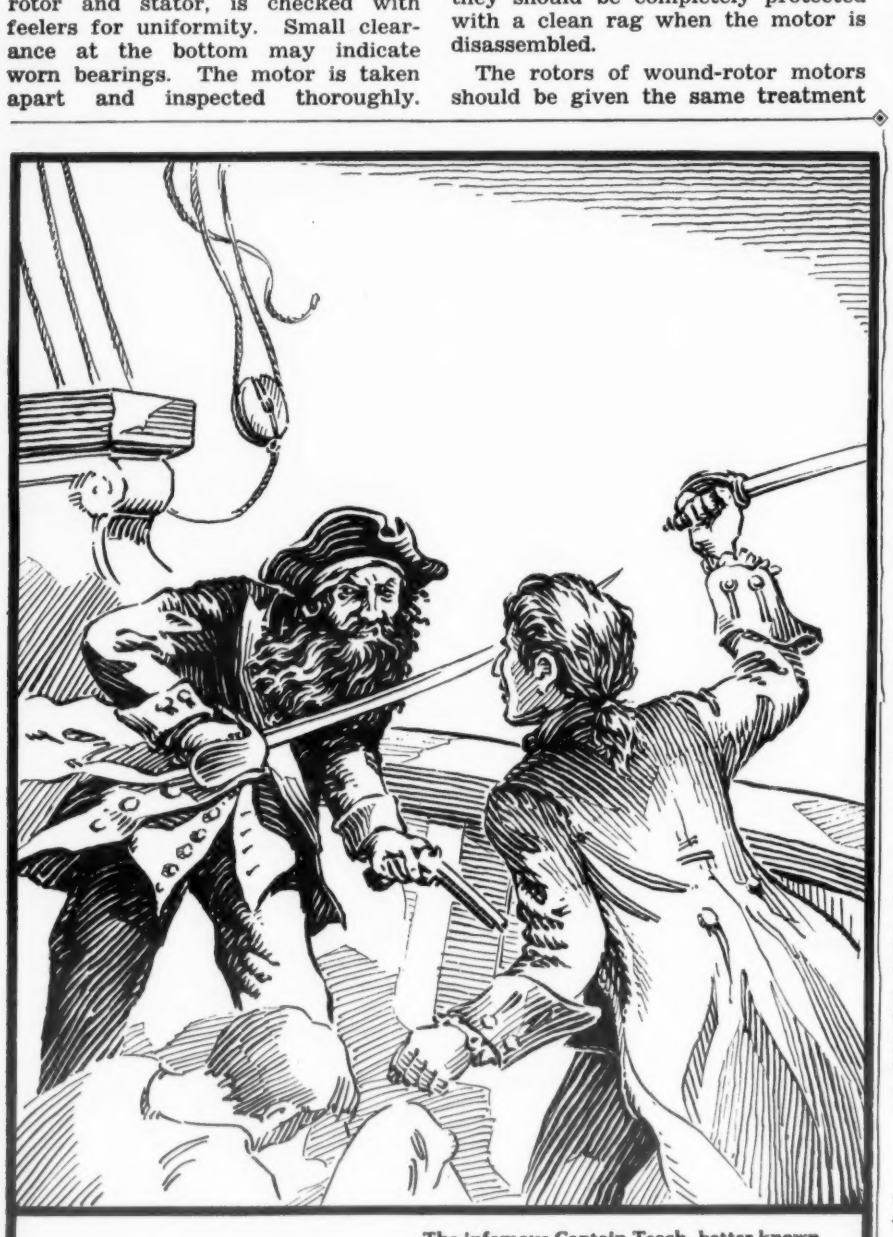
The reversal of a shaded pole motor is accomplished by disassembling the motor and reassembling it with the shaft extending from the opposite end.

The reversing of a three phase motor is accomplished by exchanging any two leads. For example, exchange Lines 1 and 2 in Fig. 14. We now find that Coil 2 is strong first, then Coil 1, then Coil 3, and then Coil 2 again. The rotating field has thus reversed its direction of rotation.

For two phase motors reversing is accomplished by reversing the connections of the stator winding for one phase.

The principles of reversing a direct current motor are that the current flow in the armature is reversed while the main field current remains unchanged; or that the current flow in the main field windings is reversed while the armature current remains unchanged.

The presence of series, shunt, and commutating field windings in many of these motors tends to make the actual work of reversing somewhat complicated. The most convenient method of reversing will be shown in the manufacturer's instructions for the particular motor. If these instructions are available they should be followed to avoid awkward connection problems.



The infamous Captain Teach, better known as Blackbeard, Pirate of the high seas, was captured by an expedition sent by the Governor of Virginia.

VIRGINIA—a name that has earned respect

To restore the freedom of the seas—to secure liberty and justice for all time and for all peoples, is America's job today. Virginia's pledged contribution to this great cause is *first,* to muster its entire man and machine power behind the Nation's fighting forces; *second,* to strive earnestly to maintain an orderly and equitable distribution of its products for civilian needs.

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Air Cooling Provides 6-Way Benefits For the Retail Baker

Buffalo Proprietor Finds It Preserves Display Products, Draws Patrons, Keeps Employes

BUFFALO—There are six benefits to be derived from air conditioning a retail bakery, believes Abe Saltzman, who has operated an air conditioned bake shop at 46 W. Chippewa St. in downtown Buffalo, for the past three years.

According to Mr. Saltzman, air conditioning:

(1)—Makes shopping more comfortable and encourages buyers to stay longer.

(2)—Protects baked goods from heat, dust, and other ill effects of non-conditioned air.

(3)—Creates a good impression on customers and encourages their returning to the shop.

(4)—Permits the baker to do a good volume of business in highly perishable summer goods.

(5)—Keeps sales people in a better frame of mind which helps sales.

(6)—In addition to keeping the shop cool in the summer, enables the proprietor to freshen up the air in his store in the winter.

A pioneer in Western New York in the air conditioned bake shop idea, Mr. Saltzman is thoroughly sold on the merits of air conditioning in a shop of his type—located in a heavily trafficked, downtown area. He points out that the average small community bake shop may have a slightly different problem relative to the need for air conditioning.

There is no question about the fact that customers find it more pleasant to shop in the air conditioned store, Mr. Saltzman said. "It seems to give them an incentive to stay longer and it enables us to increase our sales to them," he declared.

Mr. Saltzman pointed out that more and more, particularly in the downtown districts, all types of retail stores are leaning toward air conditioning. This tendency also plays an important part in influencing the retail baker to air condition his store, because if his shop is uncomfortable, in contrast with other air conditioned stores in the same district, he automatically becomes open to criticism, Mr. Saltzman believes.

"In times to come," Mr. Saltzman said, "the majority of stores and specialty houses will be air conditioned in one way or another. There is a definite trend in this direction and shoppers are getting so they are looking for comfort in their shopping tours."

On his second point, relative to the protection afforded baked goods by air conditioning, Mr. Saltzman said that excessive heat always has an unfavorable effect both on the freshness and the appearance of baked goods.

"Icings will run in the hot store and the better creams darken and become blurred when goods have been on display for several hours," Mr. Saltzman declared.

This is eliminated in the air conditioned store where baked goods retain their original appearance hour after hour, he pointed out. Air conditioning also prevents cookies from becoming sticky, Mr. Saltzman has found.

Air conditioning also makes it possible for the baker to retain freshness in his window display, the Buffalo baker asserted.

"The display window ordinarily is the hottest part of the store. It catches the sun and necessitates the putting up of protective canvas which detracts from the sales power of the window. In the air conditioned store, the window remains at a constant temperature."

Air conditioning has an excellent psychological effect on the retail bake shop customer, according to Mr. Saltzman. Such expressions as "I hate to go out of here" and "This is certainly a nice place to be in" are heard constantly by Mr. Saltzman from his customers. And while most of his regular customers are now accustomed to the air conditioned atmosphere, they still comment on it from time to time.

Buffalo, like other cities, has enforced rigid rules on the sale of cream and custard goods in the hot summer months for the protection of the public. Here, too, Mr. Saltzman finds that air conditioning gives him a considerable advantage over the average bake shop which usually chooses to give up the cream goods business during the summer months.

Mr. Saltazman does an appreciable business on custard goods during the summer months. "But I wouldn't consider handling them unless I had air conditioning," he said. "And they must be refrigerated as well." Thus, air conditioning has really opened up a new field of baking business to the Saltzman shop.

"The sales people are in a better frame of mind and they are peppier," he declared. This results in increased interest in their work and consequently a better volume of sales, he reasons.

With improvements in air conditioning systems constantly coming on the market, Mr. Saltzman finds that the retail baker can use them to effect additional improvements in his store. Besides insuring a cool store in the summer months, Mr. Saltzman's air conditioning system also keeps his store fresh in the winter by constantly changing the air.

It takes 2½ minutes to change all the air in the Saltzman shop. The dust and dirt in downtown Buffalo, as in every large city, is naturally heavier than in outlying communities. The store without air conditioning would find this dirt filtering in through open doors and windows and settling on baked goods—hardly a very effective sales help.

But none of this dirt gets into the Saltzman shop and baked goods can be kept immaculately clean at all times. Mr. Saltzman also believes in doing his office work in air conditioned atmosphere. His offices, located on a mezzanine floor in the rear of his store, also are completely air conditioned.

3 Recent Hospital Air Cooling Jobs Installed For 3 Different Reasons

SYRACUSE, N. Y.—For three different reasons three hospitals—one in Wilmington, Del., another in Laurel, Miss., and the third in tropical Curacao in the Dutch West Indies—have installed air conditioning equipment recently, according to officials of Carrier Corp. here.

In Wilmington the new Delaware Hospital is equipped with Carrier Weathermakers which completely air condition the five operating rooms and the premature infant room to provide each doctor air conditions conducive to high efficiency.

A unique feature of this installation, according to the architects, is that although all air conditioning equipment is contained in a penthouse, sound-proofed from the rest of the hospital, each doctor may adjust the room conditions to his personal taste through the use of thermostats and humidistats located in each room.

Air conditioning equipment is located on the roof and since the operating rooms are on the seventh or top floor of the building, comparatively short runs of ducts are required. The air conditioning installation was made by Keil Motor Co., Carrier dealer in Wilmington.

The Masonite Clinic at Laurel, Miss., is said to be an outstanding example of the care taken of employes' health in many modern industrial plants. Erected and equipped at a cost of more than $60,000, this modern, windowless building of brick, glass, and Masonite products contains every essential mechanical and scientific apparatus needed to provide a well-rounded medical service, not only to the employes of the Masonite Co., but also to the community at large.

A one story building of 35 rooms, the Masonite Clinic is completely air conditioned for whole year around service. The clinic is now handling more than 700 individuals a month, including 60 surgical operations and 1,500 office visits.

The third application of air conditioning to the needs of the modern hospital is reported by E. and G. Martijn in Curacao, N. W. I. According to this dealer, a visiting physician, making a routine tour of inspection in one of the large hospitals in this tropic city noticed, that all the children in the maternity ward were suffering intense discomfort from a red rash of prickly heat. A further investigation by the sympathetic doctor revealed that the only child in the hospital who was free from this tropical scourge was an infant in a room air conditioned by a portable air conditioning unit.

The doctor, a newcomer to the tropics, immediately purchased a portable air conditioning unit for his own children. On frequent extended trips by the doctor and his family away from Curacao, the air conditioning unit goes along.

Buensod-Stacey Adds New Lines For Better Service In Emergency

NEW YORK CITY — Buensod-Stacey Air Conditioning, Inc. has added two new products to its lines in an effort to be of increased service to its clients during the present emergency period, reports A. C. Buensod, president.

First of these products is the Westinghouse "Sterilamp," which the company expects will be especially valuable in ventilating and air conditioning systems in destroying germs and thereby increasing health and morale, particularly if large numbers of people are crowded together in shelters in the event of air raids.

Second new product added by the company is the "Airkem," a device used to neutralize odors and freshen indoor air, and which can be used either independently or in connection with an air conditioning system.

About 60% of the company's current volume of business is for defense, Mr. Buensod reports.

Frick Co. Reports Net Of $841,301

WAYNESBORO, Pa. — Frick Co. for the year ended Oct. 31 reports net income of $841,301, equal after preferred dividends to $11.13 each on 60,000 common shares, as compared with $598,623, or $7.09 a common share, in the preceding fiscal year.

Perishables must be Protected!

This Is Refrigeration's Part in National Defense

National Defense requires every industry to do its part in the conservation of materials and manpower. Strangely enough, however, this is the basic reason for mechanical refrigeration's very existance...to protect the perishable effort of manpower with a minimum of spoilage!

That is why Sporlan has developed selective charged thermostatic expansion valves with the clearly identified symbols U-Z-K-L-G-C and O. For Sporlan engineers were first to prove that no one charge can *perform perfectly* on several types of installations.

When determining the thermostatic expansion valves to be used on refrigeration and air conditioning installations in this united effort to defend our nation...be sure to think in terms of perfect performance.

SPOEHRER-LANGE COMPANY

Manufacturers of Sporlan Selective Charged Valves for Perfect Performance on All Installations

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PROTECTION AGAINST FUMES!

Supply your workers with this

PULMOSAN 1600 FUMEGARD

Always have your men carry a No. 1600 Fumegard Face Mask and they can go right to work—safely—in any concentration of Sulfur Dioxide, Ammonia or other refrigerants. This husky, compact mask is built for heavy duty service—yet is comfortable, permits easy breathing, full vision and freedom of action. Designed on latest gas mask principles, the 1600 Fumegard provides excellent protection and utmost serviceability. Order a 1600 Fumegard today. It will serve long and well, at reasonable cost.

Pulmosan Safety Equip. Corp.,
Dept. AC, 176 Johnson St., Brooklyn, N. Y.

WRITE TODAY
for literature giving full details and new low price.

'How Many?' & 'When?' Are Questions Asked By Buyers At Furniture Mart

Lines Smaller, But Attendance Is Up

(Concluded from Page 1)

generally have been made more pleasing through the use of cleaner styling of lines—a fact bringing pleasant surprise to many buyers expecting "berry-crate" wartime boxes.

Interiors of new models have been rearranged for greater functional usage and greater eye-appeal. New shelf arrangements and wider use of plastics in a greater range of colors were features of many models, as was incorporation of changed materials offering efficiency and style matching or bettering pre-war standards.

Although not all manufacturers have received approval of 1942 prices, only slight increases were in evidence among those whose prices had been established, and on a cubic-foot basis these compared surprisingly well with 1941 figures.

Answers to buyers' questions of "how many?" and "when?" provided exhibitors with a painful change from previous years' comparatively pleasant dickering about the "proposition." Anticipating buyers' dilemma, a greater number of home-office top executives came—and stayed—to offer counsel, suggestions, and sympathy.

Ingenuity was not confined to model redesigning by the manufacturers. Major appliance distributors and dealers, demonstrating a will to survive whatever may come, were in evidence at exhibits of products which might supplement their regular lines. One distributor, given a free hand by his dealers to buy whatever they could sell, ended the first day with his signature on an order for two carloads of china. Increased interest was also shown in lines of utility cabinets, fluorescent lights, lamps, and other specialty items.

Practically complete lines, many of them on general display for the first time, were exhibited by all participating refrigeration manufacturers.

FULL G-E LINE SHOWN

Laid out as a model "electrical appliance" department, the General Electric "Electrical City" exhibit at the Furniture Mart displayed the company's full line of 1942 major appliances. Chief crowd-gatherer of the exhibit was the remarkable "Walkie-Talkie" refrigerator—a conventional cabinet surmounted by an animated head and equipped with remotely operated radio controls providing self-locomotion of the entire unit about the exhibit floor and into adjoining halls. With mechanism completely out of sight below the cabinet liner and in the evaporator, and with no trailing wires or human assistance, the display unit stunned even surprise-hardened visitors.

On hand to point out to buyers the new features of the simplified 1942 line—including lower cabinet temperatures, white porcelain evaporators, more efficient condensing unit, recessed butter conditioner location, and improved styling—were Lou H. Miller, Carl Ballus, from Bridgeport; and D. B. Hull, H. L. Luttenbacher, Ken Crook, and R. E. Weldon of Chicago.

In addition to 1942 refrigerators, an all-electric kitchen and 1942 home laundry and ranges were shown.

Activity at the Frigidaire display, offering the first view of 1942 models to most buyers at the Show, was brisk from the opening hour. New styling, characterized by smoother, more massive lines, is evident in all of the 1942 models, which range upward from 7 cu. ft. Buyers were particularly impressed by the extensive re-arrangement of interior shelves, offering users a dozen interior arrangements on some models and 16 arrangements on others. Newly styled white porcelain evaporator doors, replacing the aluminum door of previous models, accentuated the fluted design of the cabinet door trim.

In attendance at the exhibit were L. C. Truesdell, George Durbin, Lee Clark, George Henry, Marion Drake, L. W. Smith, and other members of the organization.

The company's line of electric ranges was also on display.

New color treatment of interiors and addition of an all-purpose utility storage bin carried spotlight attention in the new models on display in the jammed three-room, three-dimension Westinghouse major appliance exhibit. Top honors for attention on the elevated stage display which dominated the exhibit were shared by the "Dolly Madison" refrigerator, the new super-styled "Regent" range, and the 1942 Laundromat.

Richer, deeper color harmony has been worked into interior styling of the 7 and 9-foot models comprising the 1942 refrigerator line. New shelf arrangements provide greater interior flexibility, and easier adjustment of the newly styled, horizontally placed Tru-Temp control. F. Kohnstamon, George Meilinger, Reece Mills, C. H. Guy, J. T. Newcomb, and John Sullivan were among those handling the exhibit.

KELVINATOR IN GLASS

Capitalizing on their location in an exhibit space bounded on three sides by glass, Ralph Cameron, Walter Jeffrey, Dan Packard, B. G. Beveridge, C. J. Coward, and others of the Kelvinator-Leonard group made their display one of the brightest and most visible of the entire floor.

The display included all models of the clean-styled 1942 Kelvinator and Leonard lines. Concentration of production on four 7-foot and two 9-foot models in each line met with ready approval of early buyers. Greater use of plastics, the deeper evaporator door, elmination of the air flue up the back of the cabinet, and self-leveling base are added features of the new models. Plastic shelf edges and redesign of evaporator coil arrangement highlight changes in "Moist-Master" models.

Ranges of the 1942 line were also on display, including as feature with top attraction the new "Kelvin Maid" automatic timer set.

Centering its exhibit around a display of two complete electric kitchens, Hotpoint emphasized the possibilities for the dealer alert to profits from allied lines. Besides its new line of refrigerators, the exhibit offered buyers food for thought through display of the new lightweight sink and expanded kitchen cabinet models.

In attendance at the exhibit, housing the full line of Hotpoint appliances, were G. W. Fischer, H. W. Rollings, F. F. Duggan, H. W. Nagel, A. C. Bartels, and F. L. Sacha.

In addition to the line of refrigerators, home laundry equipment, ranges, and water heaters of the 1942 line were displayed.

Driving home its "Strata-Zone" story, the Gibson exhibit, headed by C. J. Gibson, F. E. Basler, J. F. Stephens, and other company officials, was packed at all hours. An early announcement of the line (in November) had acquainted most buyers with the company's 1942 line, with the result that few curiosity seekers were in evidence.

Philco, another of the companies with a large line of appliances, occupied one of the largest exhibits at the Show. Radios, under less restriction than refrigerators, were highly prominent in the display, but the most novel feature was the "torn down" refrigerator, displaying to buyers all the features of the line.

Five models comprise the 1942 refrigerator group. Chief features added this year include porcelain evaporator doors, automatic floor levelers, newly located interior light, fluted doors, and additional interior color treatment.

W. E. Kress, newly appointed central division manager, and J. M. Orter were among those attending the refrigeration exhibit. Window air conditioners were included in the "All-Year" display.

NORGE IS COLORFUL

New coloring, ranging from brighter use of plastics on the exterior to an all-plastic evaporator door on some models, was quickly evident in the Norge line.

Present for the company were W. M. Tyner, Paul Puffer, refrigeration sales manager; John Drake, and E. I. Jones.

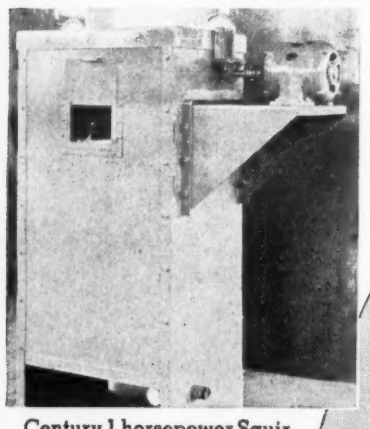
The spacious Crosley exhibit housed the company's 1942 lines of radios and refrigerators. On hand to greet buyers were R. I. Petrie, L. M. Krautter, Ben Roe, C. J. Stevens, and Jack Crossin.

New models, arranged in one continuous seven-unit-long wall display for feature comparison, include the use of glass shelves, "Moist-Kold" compartments in two of the models, a greater use of massive styling lines, and a new evaporator design.

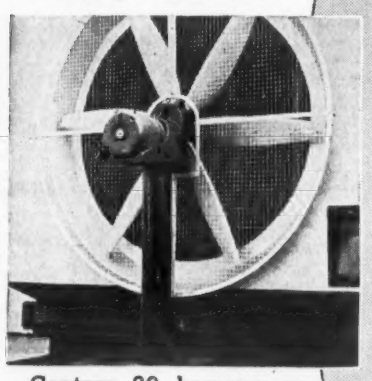
The two models in the Heinz & Munschauer line were on display under the supervision of Paul Hanson. Styled in a conventional manner, the new "Dayton" interiors are trimmed in blue plastic.

A wide variety of ice cube tray materials was on display, with few manufacturers sure of future plans regarding materials. Trays ranged from rubber, with rubber grids, through aluminum, tin-coated steel, copper and brass, to steel finished with plastic and porcelain enamel, using tinned, steel, and rubber grids.

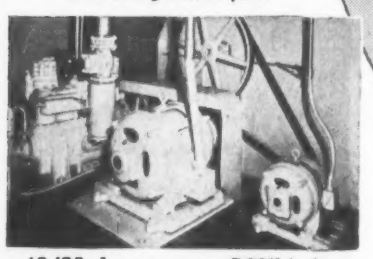
Bendix Home Appliances showed its latest model of the Bendix Home Washer.



Century 1 horsepower Squirrel Cage induction motor driving a room cooler.



Century 20 horsepower Splash Proof Motor driving a cooling tower fan.



40/20 horsepower SCHM 2-speed motor on a refrigeration compressor. 7½/3.3 horsepower SCNM 2-speed motor on a large fan.

To Secure Quiet Comfort for Every Air Conditioning and Refrigeration Need—

LOOK TO

Century MOTORS

For Quiet, Dependable Power

The ultimate objective of air conditioning involves the careful selection of the motor which has characteristics that meet the particular requirements of the individual parts of the installation.

Century Motors were successfully operating the component parts long before the assembly of parts was called air conditioning. Today Century builds various kinds, sizes, and types of motors up to 400 horsepower to meet the particular requirements of each of the component parts of the complete air conditioning system.

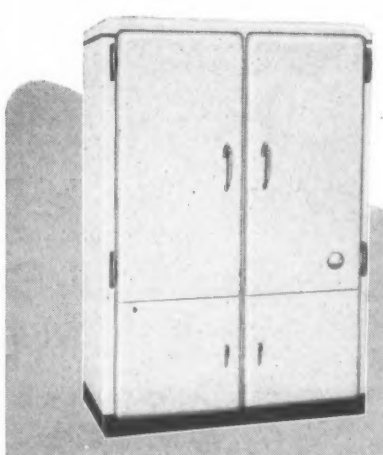
Let Century help you get peak performance from every installation — and assure satisfied customers. Call in your nearest Century Motor Specialist for helpful and profitable cooperation.

CENTURY ELECTRIC COMPANY
1806 Pine Street St. Louis, Mo.
Offices and Stock Points in Principal Cities

239

Century MOTORS

One of the Largest Exclusive Motor and Generator Manufacturers in the World



12 TO 71 CU. FT.

MOST COMPLETE 'REACH-IN' LINE ON THE MARKET!

Here's the widest selection of sizes and styles the industry affords—a model for every need. Distinguished by superb styling, fine construction and outstanding value.

Model 120 (above) has 12 cu. ft. capacity—the newest member of the "Midwest 'Reach-in'" family.

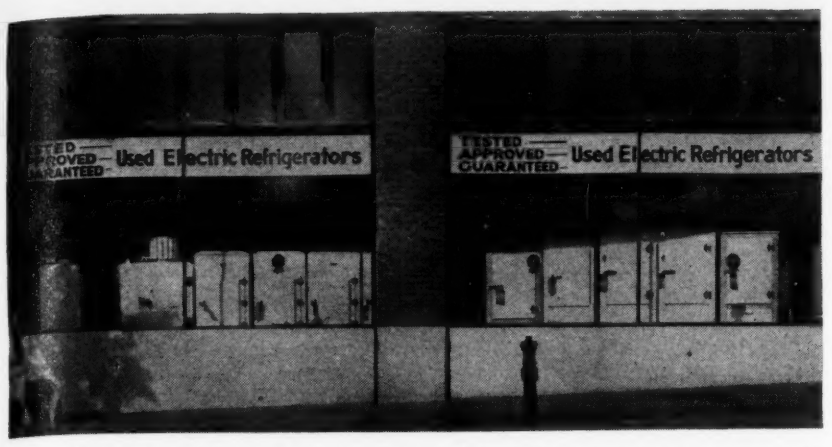
Model 700 (right) another new model has 71.5 cu. ft. capacity. In between is a full range of sizes and equipment. Write for full details now.

★ ★

Midwest MFG. COMPANY
Galesburg, Ill., U.S.A.

Export Division, 176 W. Adams St., Chicago
New York Office, 1775 Broadway

Dealers Emphasize Reconditioning as New Models Become Scarce



This exterior view of the Brown Dunkin Store in Tulsa, shows the attractive display of reconditioned refrigerators.

'Commercial Service' Firm Will Handle Household Calls — At Its Own Price

DENVER — Ignoring competition, and deliberately featuring high prices for domestic refrigeration service is an unusual—but profitable—specialty with Refrigeration Maintenance Co. here, operated by Howard Mitchell and Melvin Reed.

The company, which is an authorized Carrier air conditioning service dealership, handles contract service for apartment houses, super-markets, and air conditioning installations for the most part, with 150 contracts charged on a monthly flat rate basis per horsepower.

"Commercial service takes so much of our time that we have little left over for regular domestic refrigerator repairs," Mr. Mitchell explained. "But we keep getting calls from customers who insist that we work on their units, simply because other firms have had difficulty in repairing them."

When calls from household refrigerator users come in, Mr. Mitchell tells each one that the company doesn't specialize in domestic service, but will do the job for a flat rate.

For domestic refrigeration, the company charges a rate higher than is standard among refrigeration service companies in Denver—$2.50 per hour for labor, and a 75-cent call charge, totaling $3.25 for even a look at the box. The $2.50 per hour flat rate is split into minutes where only small adjustments or minor repairs are made, but there are scores of instances in which the charge runs up to $10 and even $15.

Novel idea is "time payments" for the customer whose refrigerator will require several hours' work to put in guaranteed running order. If the charge runs above $7.50, the customer can make three payments over 60 days if he wishes. The customer signs a simple contract which explains the details of the service.

One angle of domestic service which has become profitable has been brought about by shortages of new refrigerators—complete reconditioning at a flat price to put the unit in guaranteed order.

"Many wise owners are paying from $25 to $35 for reconditioning of old refrigerators of their own, rather than buying used models or paying a heavy premium for a large new model," Mr. Mitchell states.

Both Public & Appliance Dealer Will Depend On Servicing For Duration, Utility Warns

PITTSBURGH—Importance to the appliance dealer of "bringing his service department to the front" to make up for the shortage of new appliances is emphasized in a recent bulletin of the West Penn Power Co.

Headlined "Are You Properly Prepared for Appliance Service?" the article reads as follows:

"Now that war has come, the electrical appliance business, like all other non-military enterprises, is faced with a far greater number of uncertainties than ever before. Out of all the speculation on the degree of curtailment in appliance production and the effect of the war on our domestic economy, there emerges one certainty—a large percentage of the public will have to make their present appliances last until the emergency has passed.

"It naturally follows that there will be an increased demand for repair service, and the dealers who are properly set up to handle this service will be able to offset, at least in part, the loss of volume in new merchandise.

"To assure a profitable appliance service operation, now is the time to prepare for it.

"1. Have your service men properly trained. Arrangements can usually be made through distributors for training on major appliances.

"2. See that you have an adequate stock of repair parts. There is less chance for shortages in this line owing to the priority rating given to manufacturers for these essentials, but a sudden demand might cause difficulty.

"3. Provide proper facilities—space, tools, and other equipment—to handle service efficiently."

2 Dealers Find Plan Boosts Their Sales

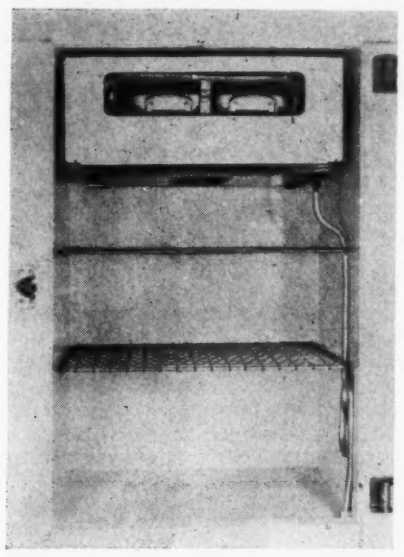
DAYTON, Ohio—Careful attention to used refrigerator trade has resulted in increased new model sales for two Frigidaire dealers—W. (Pat) Crow's in Fort Worth, Tex., and the Brown Dunkin department store in Tulsa, Okla.

Both stores found that their complete reconditioning plan enabled them to give greater allowances for trade-in on new models, resulting in a boost of new sales. In addition, their reconditioned sales brought more prospects into the store, attracting low-income groups who might have thought at the time that they couldn't afford to buy a new refrigerator.

Both stores do a complete although economical reconditioning job on all used refrigerators. Both give tradeins "appearance appeal" by refinishing the cabinet, replating the shelves, and buffing the hardware. Special attention to mechanical parts has resulted in a minimum of service calls from buyers.

Crow's reports replacement sales running nearly 50% during 1941. Brown Dunkin has shown a 50% increase in both used and new sales for the last four years. Manager W. E. Carlton of Brown Dunkin gives special training to used refrigerator salesman and places 1941 volume at between 200 and 300 used refrigerators.

BEFORE the reconditioning men at Pat Crow's started to work, the interior of one refrigerator looked like this.



AFTER they had completed servicing operations, the service men stepped back to watch the interior "shine."

New Service Firm Formed In San Francisco

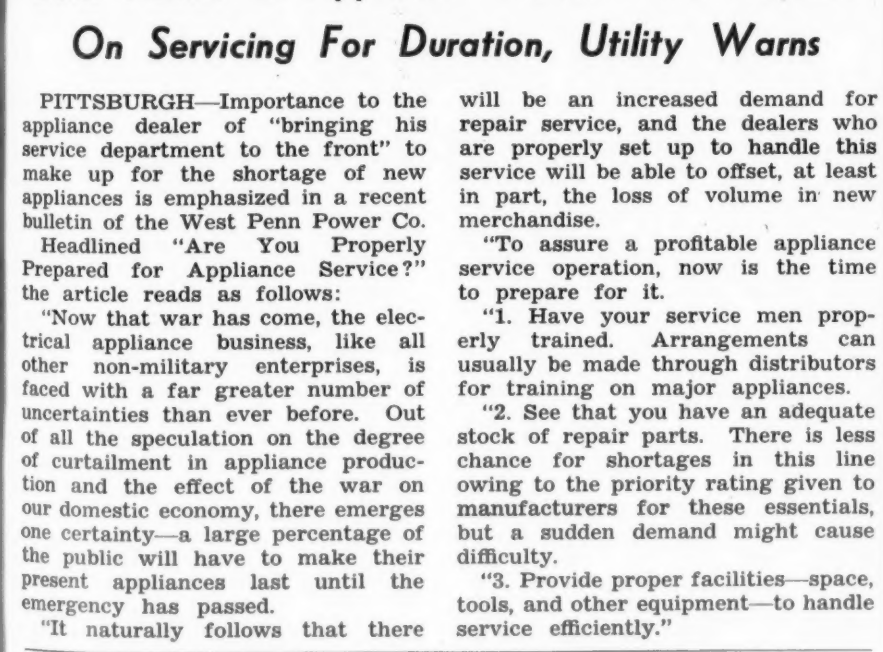
SAN FRANCISCO—A new service firm for this city is Wiseman & Sturmer, Inc., who will operate the former refrigeration service department of the Household Appliance Store at 2019 Blake St., Berkeley, separately. The business was purchased by H. Wiseman and Gene Sturmer from the appliance dealership.

'Opening Day' Celebrated By St. Louis Firm

ST. LOUIS—Refrigeration service firms, supply houses, and several manufacturers were guests of James Daniels, president and owner of City Refrigeration Service Co., at the formal opening of the new "home" of the company at 4739 McPherson Ave. "City" has grown from two men in 1937 to 35 men in 1941.

PLENTIFUL, QUICKLY AVAILABLE, IN CONTAINERS SUITED TO YOUR PARTICULAR NEEDS

SULPHUR DIOXIDE BY ANSUL



Twenty-five pounds, or a carload — Ansul Sulphur Dioxide is plentiful, readily available throughout the United States, and *economical*. Ansul Jobbers everywhere carry adequate stocks—in a variety of containers suited to your individual needs.

But more than that, Sulphur Dioxide is still the best refrigerant yet developed for household machines, and for many applications in commercial machines.

ANSUL CHEMICAL COMPANY, MARINETTE, WIS.
Manufacturers of Sulphur Dioxide for 26 Years
METHYL CHLORIDE • ICE-X
AGENTS FOR KINETIC'S "FREON-12"

HELP SAVE STEEL
Prompt return to Marinette of empty Ansul cylinders and drums will insure speedier delivery from us to you, and will save steel for vital defense needs.

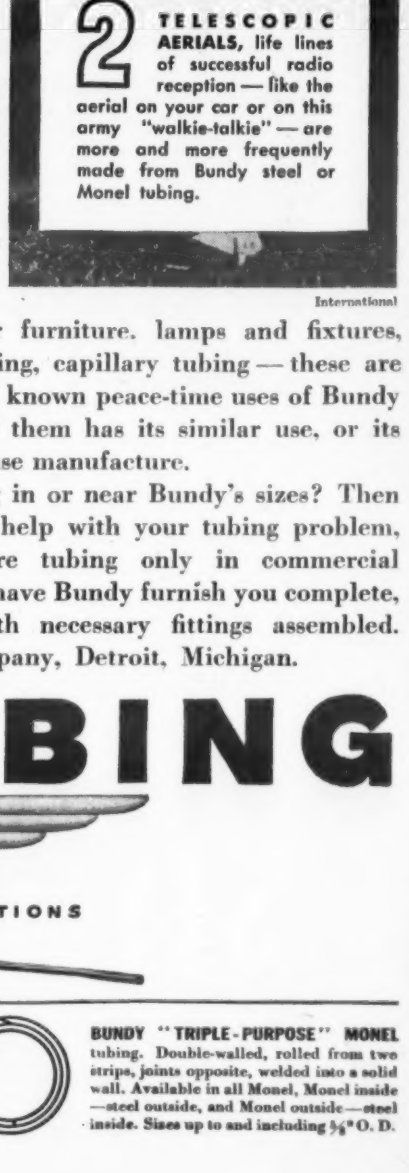
AC-45

LET US GIVE YOU THE NAME OF THE ANSUL JOBBER NEAR YOU

FAMOUS LIFE LINES

1 NORTH ATLANTIC CONVOYS, life lines of Britain's entire domestic and war-time economy, are transporting hundreds upon hundreds of American motor vehicles, most of which have their own "life lines"—gas lines, oil lines and hydraulic brake tubes — by Bundy.

Acme



2 TELESCOPIC AERIALS, life lines of successful radio reception — like the aerial on your car or on this army "walkie-talkie" — are more and more frequently made from Bundy steel or Monel tubing.

International

NEW TUBING uses spring up every day, and in a surprisingly large number of cases, if these uses call for tubing within the range of Bundy's sizes, one or another of the three types of Bundy tubing will do the job required.

For Bundy tubing—with its strength, its ductility, its resistance to vibration fatigue, and the ease with which it may be fabricated—is adapted to a wide range of mechanical uses in addition to its long recognized excellence for transmitting hydraulic pressures, or for carrying lubricants, fuel and refrigerants.

Structural tubes for furniture. lamps and fixtures, spacers, conduit tubing, capillary tubing — these are a few of the less well known peace-time uses of Bundy tubing. And each of them has its similar use, or its counterpart, in defense manufacture.

Do you use tubing in or near Bundy's sizes? Then perhaps Bundy can help with your tubing problem, whether you require tubing only in commercial lengths, or prefer to have Bundy furnish you complete, fabricated parts with necessary fittings assembled. Bundy Tubing Company, Detroit, Michigan.

BUNDY TUBING

ENGINEERED TO YOUR EXPECTATIONS

BUNDYWELD double-walled steel tubing, hydrogen-brazed, copper-coated inside and outside. From Capillary sizes up to and including 1/16" O. D. This double-walled type is also available in steel, tin-coated on the outside, and in Monel.

BUNDY ELECTRIC WELD steel tubing. Single-walled — butt welded — annealed. Also furnished tin-coated outside if desired. Available in sizes up to and including 5/8" O. D.

BUNDY "TRIPLE-PURPOSE" MONEL tubing. Double-walled, rolled from two strips, joints opposite, welded into a solid wall. Available in all Monel, Monel inside —steel outside, and Monel outside—steel inside. Sizes up to and including 5/8" O. D.

Unusual Methods Used In Pacific Fruit Storage

Banana Room Has Steam, Water Jets, Revolving Table

SEATTLE—To maintain fruit and produce in prime condition, the Pacific Fruit & Produce Co., one of the largest of its kind in the country with operations extending into 16 states, uses refrigeration extensively. Typical of the company's plants is that located here.

Chief feature of the Seattle warehouse is the equipment designed for handling bananas. There are nine banana rooms with a total storage capacity of approximately 20 carloads, each of which is cooled by an American Blower comfort cooling unit. Three 7½-ton York "Freon" machines, and a York evaporative condenser supply refrigeration for these rooms.

Proper humidity conditions are especially important in produce handling, as a certain amount of excess moisture is nearly always present. During the winter an automatic steam jet installation is found desirable, but during hot weather, or when the rooms are heavily loaded, manually controlled water sprays are put into operation. During certain stages of the banana ripening process relative humidity is maintained above 93%.

This unusual revolving table was devised to speed up grading of bananas at Pacific Fruit & Produce Co.'s Seattle plant.

* * *

Temperatures run between 55° and 70° F.

Johnson service pneumatic controls are used throughout. For both refrigeration and heating control, pneumatic reverse acting valves, which automatically close off in event of a power failure, are employed.

To facilitate handling of bananas a continuous flow, gravity type conveyor brings the fruit from trucks or railroad cars into the plant. The spur track accommodates nine freight cars. The conveyor also transports ripened bananas to the cutting table, a three-tier revolving table with canvass convering a framework of steel.

The worker trims and cuts the fruit before removing the stem from the conveyor and then grades it by placing it on a designated tier of the table. This special table permits a minimum of handling and speeds the operation.

Crates are assembled on a mezzanine overlooking the banana floor and are transported to the point of packing by a belt type conveyor.

Seven other produce storage rooms in this plant are held at temperatures varying from 32° to 45° F. by ammonia equipment. Refrigeration is supplied by a Baker 5 x 5½-inch high speed, double cylinder compressor, two Frick 6 x 6-inch compressors, and Baker coolers and receivers. Storage room for frozen foods is maintained at —5° F. by a two-cylinder Baker unit. Condensing water for these machines is supplied by a deep well. Five of the produce rooms measure 30 x 50 feet, and two measure 45 x 50 feet.

Special provision is made for handling of dried fruits and nut meats. Dried fruit storage room is maintained at 40° F. by a Baker air conditioning unit. Tomatoes, which require as close control of conditions as bananas, are stored in rooms held above 55° F. by fans and refrigeration pipe coils.

Total floor and storage space in the plant amounts to 100,000 sq. ft. Spur tracks hold 17 freight cars.

Refrigerated Locker Plant Notes

TEXAS BRANCH PLANT

JUSTIN, Tex. — Smith Frozen Foods Co., which operates a 300-locker plant in Denton, Tex., is building a 190-locker branch plant here. Bond Refrigeration Co. of Dallas is installing the refrigeration equipment.

ILLINOIS BRANCH PLANT

FRANKLIN, Ill.—Waverly Locker Co. of Waverly, Ill. plans to open a branch plant here. Leonard Points and Arthur Nortrup of Franklin and Fred N. Herr in Jacksonville, Ill. are interested in the project.

OMAHA FROZEN FOODS

OMAHA, Neb.—Jerpe Commission Co., frozen foods processing and cold storage firm operated by C. A. Swanson & Sons here, has started operations in its remodeled plant at Twelfth and Douglas Sts., producing dried eggs for Great Britain. The property was purchased last summer and improved and equipped at a cost of $150,000.

The company moved into its new one-story headquarters building recently. Chickens and turkeys are being processed at the company's main plant as part of the food defense program.

OREGON GROUP ACTIVE

SALEM, Ore. — L. M. Ramage, who operates a 1,000-locker plant at Salem, was elected president of the Oregon Refrigerated Locker Association at the annual business meeting held here. Other officers named were Oscar Hurley, Portland, vice president and Jason E. Frizelle, Salem, secretary-treasurer.

LARAMIE, WYO. PLANT

LARAMIE, Wyo. — The Arctic Frozen Food Locker Service plant was opened here last fall. The plant has 200 lockers. E. L. Eykyn is manager.

320-LOCKER PLANT OPENS

LADOGA, Ind. — A 320-locker frozen food storage plant has been opened here under the management of Joseph Genung.

NEW ANNISTON BUILDING

ANNISTON, Ala.—Anniston Ice & Coal Co. has opened a locker plant with 300 lockers in a new brick building adjoining the ice plant here. A. L. Scarborough, head of the ice and coal company, is also in charge of the locker plant.

TWIN UNIT PLANT

GARDNER, Ill. — Clover Farm Store has installed a 150-locker frozen food storage plant using two 1½-hp. Frigidaire compressors. Locker rentals are scheduled to vary from $10 to $14 annually. Processing charges are fixed at 1¼ cents per pound.

SALESROOM TO PLANT

VERSAILLES, Ky.—Incorporation papers have been taken out for Woodland Frozen Foods Bank here. Capital stock will be $10,000, consisting of 1,000 shares at $10 each.

A former motor car sales room is being remodeled to house the locker plant, which was planned to be in operation around the first of the year.

Robert Cleveland is president; Robert McConnell is vice president. There are five directors.

MICHIGAN PLANT TO OPEN ANOTHER

PORTLAND, Mich. — Symons Frozen Food Locker Co. of Ionia, Mich. plans to have a locker plant in operation here by the end of the year.

MARKET-PLANT COMBINE

EDGAR, Wis.—Edgar Equity Co-operative Co. has purchased a building here which it plans to convert into a combined meat market and frozen food locker plant with 300 lockers.

BANK TAKES APPLICATIONS

FLANAGAN, Ill. — Committee meetings have been held here to discuss the possibilities of erecting a locker plant, and applications for locker rental are being accepted at the Flanagan State Bank. If enough prospective renters sign up, a locker plant will be assured, it is reported.

Druggists Increased Refrigeration Buying In All Classes

NEW YORK CITY—More druggists bought refrigerating equipment during 1941 than in any previous year, according to the findings of a survey by "Drug Topics," retail drug trade publication. Increased expenditures by druggists for air conditioning equipment and ice cream freezers also were noted.

For refrigerating equipment, including both fountain and prescription departments, druggists spent an estimated total of $1,903,498 in 1941, an increase of 95.8% over 1940 expenditures of $970,436. The outlays of independent drug stores for such equipment increased from $862,236 to $1,706,145, while similar expenditures by chain druggists jumped from $108,200 to $197,353.

Expenditures by druggists for ice cream freezers soared from $497,800 in 1940 to $1,433,260 in 1941, it was estimated. This sharp increase was attributed entirely to independents, who spent an estimated total of $1,369,485 for freeezrs in 1941, compared with $428,750 in 1940. Chain druggists spent $63,775 for freezers in 1941, a slight decrease from similar outlays of $69,050 the previous year.

Air conditioning equipment installations in drug stores proceeded at a more rapid rate, with total 1941 expenditures reaching $2,881,406, as against $2,571,200 in 1940. Independents spent $2,047,815 on air conditioning in 1941, as against $2,030,000 in 1940, while such expenditures by chains jumped from $541,200 in 1940 to $833,591 in 1941.

Indicating the effectiveness of air conditioning as a sales stimulant in retail stores, reports to "Drug Topics" indicated an average sales increase of 22.4% by stores installing air conditioning equipment.

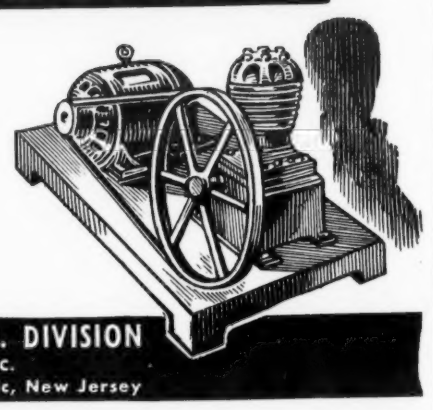
MANHATTAN V-BELTS

Cut service costs

MORE POWER
Side compressibility grips the grooves and prevents slip—flexibility gives uniform "pull."

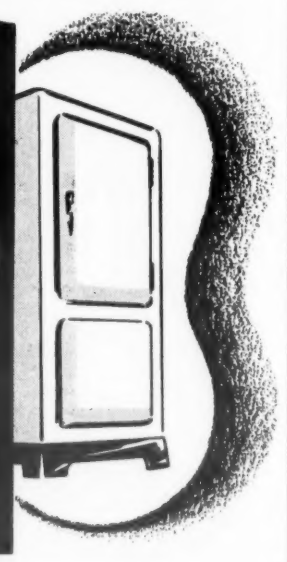
LONGER WEAR
Endless cord floats in rubber on neutral axis —gives greater strength, resists internal heat and side wear.

SILENT RUNNING
MANHATTAN V-Belts run smoothly and quietly.



THE MANHATTAN RUBBER MFG. DIVISION
OF RAYBESTOS-MANHATTAN, INC.
45 Townsend Street Passaic, New Jersey

Ersatz REFRIGERATION? NO!



Refrigeration—mechanical refrigeration—is a part of the American way of life—it must be safeguarded. The nation's health is at stake!

In 1942, one fact stands out. MAINTENANCE OF EXISTING EQUIPMENT IS VITAL TO THE WELFARE OF 130,000,000 AMERICANS!

Thousands of service engineers and prominent manufacturers of dehydrators face this responsibility with confidence because they have chosen Davison's Silica Gel to overcome refrigeration's worst hazard—moisture. Their experience has proved that Davison's Silica Gel is a major factor in satisfactory performance—its capacity, its speed, its freedom from dusting, its ability to remove acids all add up to *permanent* elimination of breakdowns caused by moisture.

To do a GOOD job—you need a GOOD drying agent. Specify Davison's Silica Gel—in charged dehydrators or in bulk—from your jobber.

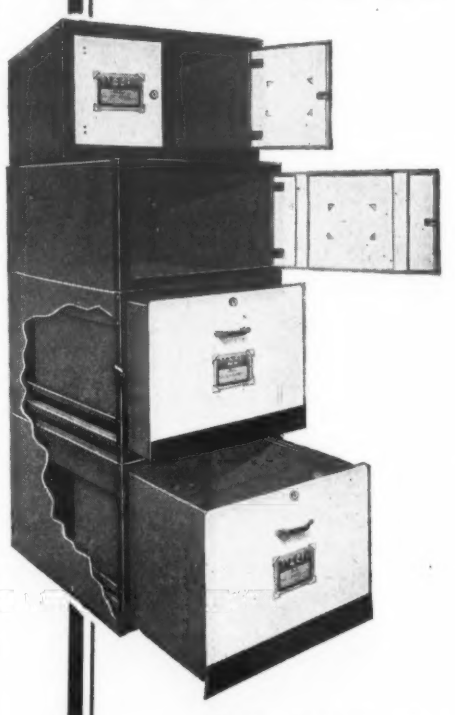
FOR BEST RESULTS

STANDARDIZE ON DAVISON'S SILICA GEL

DAVISON'S SILICA GEL
Moisture's Master
THE DAVISON CHEMICAL CORPORATION
SILICA GEL DEPARTMENT • BALTIMORE, MARYLAND

Locker Plant Industry Shows Fast Growth

An average of more than 2 new food storage locker plants a day went into operation in the past year. The 1941 survey by the Farm Credit Administration shows an increase of 753 over the preceding year. The number of lockers per plant averages about 325, according to trade estimates.



Are You Getting Your Share Of This Business

Increased activity among new and prospective locker plant owners has caused a tremendous spurt in locker plant sales.

Wishful thinking won't bring this business to you. You've got to go after it. It's there for those who are on their toes.

Write For Details On Masterbuilt Lockers

Find out why Master has the fastest selling lockers on the market. Details sent upon request.

Master Lockers are endorsed by and sold only through distributors of refrigeration and insulation.

MASTER REFRIGERATED LOCKER SYSTEMS, Inc.
121 Main St. Sioux City, Iowa

Over 250,000 Masterbuilt Lockers in Use

'How To Do More With What You Have' Is Order of the Day

York Production Expert Outlines A Plan For Shifting Workmen

By H. L. Consley, Assistant Works Manager, York Ice Machinery Corp.

Editor's Note: The following paper was presented by H. L. Consley at a special production conference, the theme of which was "How to step up production without the purchase of major equipment or large-scale hiring of skilled men."

The very extravagant theme of this conference seems, at first thought, to be asking for a recital of miracles, and yet after giving the subject serious thought, I realize that we have been doing just the thing that the theme indicates, but our outstanding measure of achievement has been cost rather than volume of production.

Today we are thinking more about **doing the best with what we have,** which is the basis upon which the now famous "York Plan" was developed. It is impossible to secure equipment, it takes time to train men; therefore, we as managers, engineers, manufacturers, must find ways to **do more with what we have** if we are to be successful in the National Emergency Program.

The experience story that I am going to relate is one which has to do with a job we have actually done and proven in our sheet metal shop. This shop is not what would be termed a big production shop, nor is it entirely a jobbing shop. It is some place between these two, with some fairly good production jobs, some slightly repetitive jobs, and some individual jobs that never repeat.

This shop now employs 150 to 200 men. The production consists of sheet metal work used in the construction of air conditioners, air washers, coolers, condensers, etc. A large percentage of these products are used directly by the Army and Navy and a greater part by other industries in the processing of material used directly in the War Program.

Our accepted procedure at one time was to furnish engineering drawings to sheet metal workers who used the usual run of equipment found in sheet metal shops, such as shears, brakes, presses, spot welders, etc. Thus, at the start of our analysis, there were three things that stood out for consideration:

1. Drawings
2. Sheet metal workers
3. Manufacturing equipment

At once item No. 3, manufacturing equipment, was eliminated due to three things—

1. It costs money and increases overhead.
2. To house it, buildings are needed which in turn cost money and take time to build.
3. It is impossible to secure equipment in a reasonable length of time, if at all.

We then focused our attention on the sheet metal worker himself, who is a highly skilled workman and one who stands high in the ranks of skilled labor. Bearing in mind that we were working from engineering drawings, we attempted to set down in black and white, the things that the sheet metal worker actually did and we were surprised at the number and the importance of his jobs. The record of his activities divided itself into eight jobs as follows:

1. LAYOUT

a. Visualization of a solid shape as a plane surface
b. Practical application of plane and solid gometry
c. Application of allowance in measuring—
Stretch and crawl of metal—
General metal performance
d. Determination of the economical use of material
Location of seams
Number of seams vs. size of sheet
Cost extras on size of sheet

2. DESIGN OF JOINT AND CONSTRUCTION

a. Size rivets
b. Spacing of rivets
c. Number of spot welds per foot of seam
d. Seam welding
e. Caulking
f. Soldering
g. Brazings, etc.

3. SELECTIONS OF OPERATIONS TO BE PERFORMED—and determination of the sequence of these operations so that they do not interfere with each other.

4. SELECTION OF EQUIPMENT

a. Size and capacity of shear, brakes, etc.
b. Tools, Dies
c. Multiple or single punch, etc.

5. PLANNING OF THE JOB

a. Writing of bill of material in form of material requisition
b. Securing of material
c. Collecting of tools
d. Fixing of shipping date, then scheduling of operations

6. SET UP

Equipping of the brakes, presses, etc. with dies, punches, bars, stops, templates, etc., for the specific job.

7. MACHINE OPERATION—Operating of any or all of the tools in the shop

8. ASSEMBLY

Riveting, Spot Welding, Bolting, Soldering, Caulking, Testing

Tagging and forwarding to Shipping Department or to other stop departments.

This brought us face to face with the realization of the fact that our problem was one of transferring skill and specialization of jobs. It became evident at once that to do this we must record the skill in some way so that fewer skilled men could do the job. This meant that we must furnish the shop with:

1. Complete drawings of single pieces in full detail with definite tolerances on each measurement and specification.
2. Shear chart showing how to cut the pieces out of the sheets specified.
3. Bill of material covering all items required—this to be used as a material requisition.
4. List of the operations and their sequence
5. Name of the department in which the job will be done.
6. List of equipment or work stations to be used
7. Incentive allowance for the setup and for each operation.
8. Scheduled date for each operation

This would be the guarantee that all vital information and all work done on each job was recorded, thus eliminating the preparatory work each time the job was repeated in the shop.

This was an enormous undertaking. Trained people were not availiable to record the information, or at least we thought they were not. This was solved, however, by using the most flexible sheet metal workers in cooperation with the most flexible draftsmen—and shortly shop drawings, with everything on, were coming through into the shop.

This at once eliminated five of the eight skilled jobs of the sheet metal worker. He did not have to—

1. Layout
2. Design joints and determine construction
3. Select operations and their sequence
4. Select equipment
5. Plan the job

This left then, only these three of the eight operations to be done by workmen in the shop:

6. Setting up of tools, presses, brakes, shears, etc. which in reality did not require a sheet metal worker but rather a specialist who was familiar with the dies, tools, and machinery. These men, in most cases, were trained from helpers and handymen in the shop.
7. Machine operating, which again did not have to be done by sheet metal workers. They were trained within a short time to operate specific tools and not sheet metal working tools in general.
8. The Assembly work which was largely a matter of putting parts together in accordance with a predetermined plan and as a result, these men could be trained from new employes of average intelligence in a very short time.

Thus, we were in position to use our trained, highly skilled, and much valued sheet metal workers as foremen, gang leaders, set-up men, instructors, layout men, and as methods men. In this way we accomplished the following things:

1. We increased greatly the ratio between non-skilled and skilled employes.
2. We increased the productive capacity of the equipment.
3. We increased the productive capacity of the shop as a whole.
4. We decreased by 20% the amount of supervision required in instructing the men how to do the job, because the drawings were simple, plain, and complete.
5. We simplified materially the job of making time studies.
6. We decreased the time required for setting rates by 28%. This increased incentive coverage from 30% to 97% which in turn increased production through improved worker effort.
7. We found and located interchangeable parts on various units that could be built in stock lots. On some pieces the setup time was 10 to 20 times greater than the operation time due to the small quantities. This was materially improved by bringing through stock lots of interchangeable parts.
8. We reduced the inspection time by approximately 25%.
9. We simplified the planning and scheduling activity to a point that permitted it to really work.

Through this procedure we materially increased the productive capacity of the shop without increasing skilled labor or equipment, and proved definitely that through shop drawings, transfer of skill, specialization of work, and better planning and control, we could **"Do More With What We Have."**

Harry Warren Named On Laundry Committee

CHICAGO — Harry E. Warren, manager of the Hotpoint home laundry sales division, has been appointed to the laundry equipment industry advisory panel of the Office of Price Administration. Purpose of the panel is to advise on price rulings formulated by OPA affecting domestic washing machines, ironers, etc.

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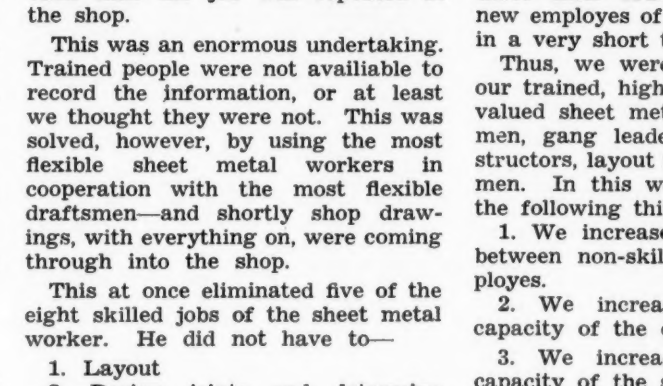
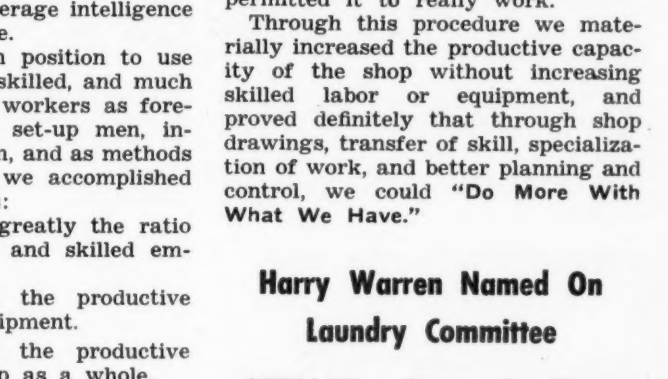


Official U. S. Navy Photographs



The Armed Forces of the United States

Alco Thermo Valves and other Alco Refrigerant Controls are widely used by the United States Navy. In surface vessels and in submarines, now at sea or in the process of construction, Alco Valves are playing an active part in the defense of America.

Alco Valves assure dependable control of the refrigeration and air conditioning systems of the United States fleet—a vital factor in the efficiency of our fighting ships and in the welfare of their crews.

In bases and cantonments of the Army too, Alco Refrigerant Controls have the important job of maintaining accurate control of the refrigeration, cooling and freezing of foodstuffs for the Army's personnel.

Alco is proud of the opportunity to serve our country in this manner. Much of our present production is now being utilized directly by the armed forces of America.

Civilian Requirements Are No Less Important

Certainly few aspects of our national defense are more important than the maintenance of the health and welfare of our people — in fact, *refrigeration is our national defense* against food waste and food spoilage that endangers health.

The preservation of America's food supply depends upon proper refrigeration facilities. The transportation, processing and storage of the nation's food must rely upon modern mechanical refrigeration.

Today, *more* refrigeration is urgently needed. Increased civilian demand for perishable foods has resulted in the construction of new food stores to serve the shifting population of workers on defense projects. Old, obsolete refrigeration systems are in need of replacement. The demand is here now, and it is urgent.

For years, the development of Alco Refrigerant Controls and their record of accuracy and dependability has been an important factor in the progress of the commercial refrigeration industry. Today Alco joins with this industry in emphasizing the importance of commercial refrigeration as a vital part of our defense effort.

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THE STANDARD OF THE INDUSTRY

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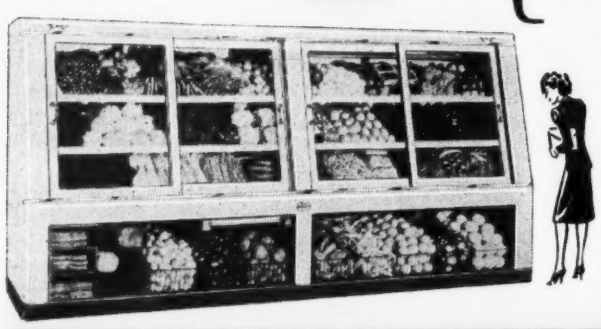

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Sealed at factory to insure "factory fresh" dehydration at installation time. Silica Gel fill does not cake. Filter gives five times the filtering area of screen wire. One piece copper shell. Filters are securely anchored to shell. Made in non-rechargeable and rechargeable units. No pressure drop—full filtering effect. The last word in dehydrating efficiency. Fresh up to the instant of usage.

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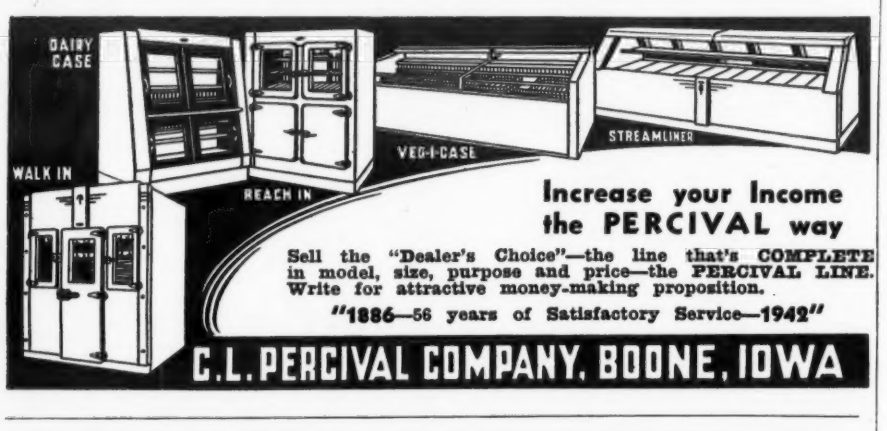

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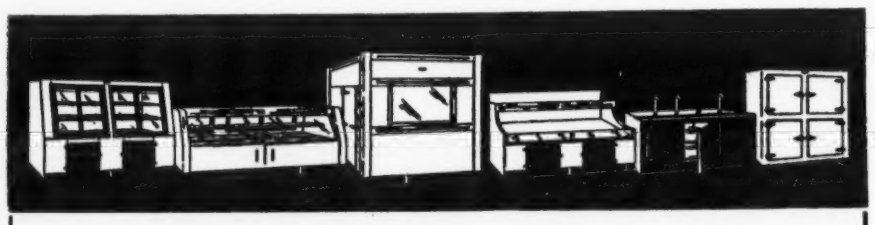
C.L. PERCIVAL COMPANY, BOONE, IOWA



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Chlorine Produced In U.S. After Feb. 1 Will Be Allocated

WASHINGTON, D. C.—All chlorine produced in the United States will be subject to direct allocation after Feb. 1, 1942, according to the terms of an amendment to General Preference Order M-19 issued recently by the Director of Priorities.

War demands for chlorinated products have accentuated the shortage of chlorine which was the occasion for placing chlorine under full priorities control on July 28 of last year.

To facilitate allocation, a new type of requirement is now provided for scheduling orders for chlorine. Regardless of priority ratings, no producer of chlorine may accept orders after the tenth day of any month for delivery in the next calendar month, without specific direction from the Director of Priorities. No distributor of chlorine may accept orders after the fifth day of any month for delivery in the following month, without specific direction.

All producers of chlorine are required to file with the chemicals branch of OPM on or before the fifteenth day of each month, on form PD-191, a schedule of deliveries to be made the following month. After Feb. 1, no deliveries of chlorine may be made without specific authorization from the Director of Priorities.

Authorizations will be based on a review of the schedules submitted, in the light of defense and essential civilian requirements. If no change in the proposed schedule is made by the Director of Priorities by the twenty-fifth day of the month, deliveries in the following month may be made according to the schedule submitted.

All orders for chlorine must be accompanied by form PD-190, properly executed.

Another provision of the amended chlorine order specifies priority ratings which are to be granted to orders for chlorine for certain purposes.

Under the amended order, each producer of chlorine is required to set aside each month 5% of his estimated monthly production in liquid chlorine. The producer is to make no commitments with respect to this chlorine reserve. However, subject to the general provisions of Priorities Regulation No. 1, the reserve chlorine may be sold and delivered if no express order for its disposition has been issued by the Director of Priorities by the fifteenth day of the month in which the reserve is set aside.

Non-defense as well as defense orders for chlorine must be accepted by producers if a priority rating has been assigned to such orders.

Except for the allocation provision which become effective Feb. 1, the recent amendments to General Preference Order M-19 go into effect immediately, and will remain in effect until revoked by the Director of Priorities.

R. Smith Heads Commercial Dealership In Illinois

MARION, Ill.—Ray Smith, formerly district representative for Frigidaire in the St. Louis territory, is now operating an air conditioning and commercial refrigeration dealership here under the name Ill-Mo Refrigeration Co. The company specializes in locker plant and food storage refrigeration.

Serviceman Describes Advantages of Butane Gas In Soldering

DALLAS, Tex.—Butane gas provides a better and cheaper method for soldering fittings, contends A. F. Tommey, service chief for Carrier-Bock Corp. here, one of the leading refrigeration and air conditioning engineering and contracting firms in the Southwest.

After a year's experience with butane gas, Mr. Tommey has found that it excells acetylene in many uses and its cost is materially less.

Bottled gas is particularly helpful on installations involving fittings 2 inches and larger in size, says Mr. Tommey. With the thin, hot acetylene flame, the operator frequently finds that by the time he has reached the top of the fitting, the bottom portion has already cooled, making for a prolonged and uncertain soldering job, according to Mr. Tommey.

He says that the use of butane with one of the Insto-Gas drums or bottles of 5-lb. capacity has entirely solved the problem of more efficient and quicker work.

Westinghouse Solves Water Problem on Small Blower Unit

EAST PITTSBURGH, Pa.—Because an engineer chanced to put his screwdriver in the drip pan of a small air conditioning unit, Westinghouse Electric & Mfg. Co. has solved a perplexing problem.

In some localities the humidity is occasionally so high that water collects in the drip pan faster than it can evaporate. The obvious solution is a drain connection, but that proves a nuisance with a small unit.

When the engineer placed the blade of his screwdriver into the drip pan in the laboratory one day, he observed that the water climbed up the blade and was blown off into a fine spray and evaporated by the condenser fan. Air blowing past the screwdriver standing at an acute angle created a vacuum behind the blade that pulled the water upward.

Westinghouse now fastens a flat curved strip of metal to the unit so that one end dips in the tray as the screwdriver did, and excess water is dissipated as rapidly as it collects.

West Coast Dealers Sell 'Blackout Curtains'

SAN FRANCISCO—"Blackout curtains" made of heavy black paper which can be easily applied over windows with thumbtacks, are being retailed for a local manufacturer by some 20 appliance dealers here to help the West Coast prepare for possible enemy air attacks.

These appliance dealers, who depend on window displays to attract many customers, have painted on their own blackout curtains in blue or yellow letters the name of their store and lines carried. Stores using fluorescent lights must be outfitted completely with blackout curtains, it is said, because that light can be seen clearly from the air.

Texas Chemist Makes Rubber Out of Gas

AUSTIN, Tex.—Waste natural gas will be used in the manufacture of a new synthetic rubber being developed by Dr. Eugene Paul Schoch, director of the University of Texas bureau of industrial chemistry here.

No details on the new product have been made public, since the university intends to patent the manufacturing process, but it was asserted that this method will produce "rubber" at half the cost of synthetics made from petroleum or guayule.

A $1,000,000 Federal grant for establishing a plant to manufacture "Schoch rubber" will be sought by Senator O'Daniel, while Governor Stevenson declared that he would approve a deficiency appropriation if the university requested one to complete its research.

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Performance that is perfect every minute of the day . . . that's what you get with every Koch display case. Miraflex cooling units mean perfect refrigeration. K-Beam lighting gives added sales impetus to profit-making displays. Welded steel construction and 4-in. insulation . . . permanent satisfaction built right into the case. Investigate the Koch case . . . and the complete Koch line. Write today for complete details, open territories, and Koch selling plan.

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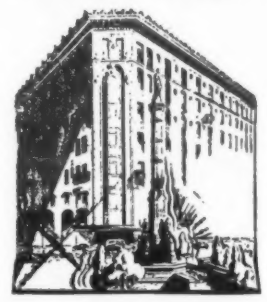

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Where To Go To Obtain Armament Subcontracts

Small manufacturers who may be able to make any of the "parts and pieces" that will go into the U. S. war machine should get in touch with the nearest field office of the Division of Contract Distribution. The following is a revised list (to December) of these field offices.

The Division of Contract Distribution has as its function the co-ordination of all sub-contracts so as to distribute production over the country and at the same time make for speed and greater efficiency in delivering fighting equipment of all kinds.

State	Manager	Address
Alabama		
*Birmingham	L. E. Geohegan	302-306 Phoenix Bldg., 1706 2nd Ave. N.
Arizona		
*Phoenix	Fred F. Schalmo (Acting)	406 Security Bldg.
Arkansas		
*Little Rock	Alfred M. Lund (State Director)	304 Rector Bldg., 3rd & Spring Sts.
California		
San Francisco	Col. Francis M. Smith	Federal Reserve Bank Bldg. Sansome & Sacramento Sts.
Los Angeles	Howard Hutchins	1031 S. Broadway
Colorado		
*Denver	Clyde C. Hartzell (State Director)	U. S. National Bank Bldg., 817 17th St.
Connecticut		
*Hartford	Carl Gray (State Dir.)	Phoenix Bank Bldg., 805 Main St.
Bridgeport	R. L. French (Acting)	Professional Bldg., Main St.
Delaware		
*Wilmington	B. L. Giest (Acting)	314 Penn Bldg., French & Water Sts.
Florida		
*Jacksonville	Chas. C. McCubbin (State Director)	620 Hildebrandt Bldg.
Miami	F. D. Banning (Acting)	514 Congress St.
Tampa	Arthur B. Hale	901 Wallace S. Bldg.
Georgia		
*Atlanta	W. C. Cram, Jr.	Suite 150, Hurt Bldg.
Idaho		
No Office		
Illinois		
*Chicago	Thos. S. McEwan	Federal Reserve Bk. Bldg., 230 S. LaSalle
Springfield	Edward Gerrity	407 Leland Office Bldg.
Indiana		
*Indianapolis	Frank Hoke (State D.)	Circle Tower Bldg.
Evansville		Koenig Bldg., Room 8
		112 North, West 4th St.
Iowa		
*Des Moines	Geo. Beese (State Dir.)	505 Crocker Bldg.
Kansas		
*Wichita	Harold Hartzell (State Director)	517-518 Union National Bank Bldg.
Kentucky		
*Louisville	Prentiss M. Terry	200 Todd Bldg.
Louisiana		
*New Orleans	R. E. Judd (State Dir.)	Room 423 Canal Bldg.
Shreveport		916 Giddens Lane Bldg.
		Milan & Marshall Sts.
Maine		
*Portland	Herbert Payson, Jr. (State Director)	Room 501-502 443 Congress St.
Maryland		
*Baltimore	G. W. Greighton (State Director)	Federal Reserve Bank Bldg. Lexington and Calvert Sts.
Massachusetts		
*Boston	Edward V. Hickey (State Director)	Federal Reserve Bank Bldg., 30 Pearl St.
Fall River	W. E. Stanwood (Acting)	27 South Main St.
Springfield	Howard G. Philbrook	95 State St.
Worcester	Dwight Clark Daniels	State Mutual Bldg., 340 Main St.
Michigan		
*Detroit	Warren H. Clarke (State Director)	Woodward Ave. & East Grand Blvd.
Minnesota		
*Minneapolis	Harold O. Timberlake	Midland Bldg.
Mississippi		
*Jackson	A. G. McIntosh (Acting)	610 Tower Bldg.
Missouri		
*St. Louis	F. J. McDevitt	Federal Reserve Bank Bldg., 411 Locust
Kansas City	R. W. Webb	Federal Reserve Bank Bldg. Tenth St. & Grand Ave.
Montana		
*Helena	R. E. Towle (State D.)	Fed. Reserve Bk. Bldg., Park & Edward
Nebraska		
*Omaha	A. Walker (State Dir.)	Fed. Reserve Bk. Bldg. 1701-5 Dodge St.
Nevada		
No Office		
New Hampshire		
No Office		
New Jersey		
*Newark	R. L. Kennedy (State Director)	176 Sussex Ave.
New Mexico		
No Office		
New York		
*New York City	W. O. Crabtree	Channin Bldg., 42nd St. & Lexington
Albany	F. J. Holman	State Bank Bldg., 75 State St.
Brooklyn	Emile Weinberg	16 Court St.
Buffalo	Thos. J. O'Rourke	Mfrs'. & Traders' Bank Bldg. Room 212 Main & Swan Sts.
Rochester	Mahlon Gregg	119 E. Main St., Commerce Bldg.
Syracuse	T. D. Harter	302 Starrett-Syracuse Bldg., 224 Harrison
North Carolina		
*Charlotte		New Liberty Life Bldg.
North Dakota		
No Office		
Ohio		
*Cleveland	Dr. Charles Terry (State Director)	Federal Reserve Bank Bldg. East 6th St. and Superior Ave.
Cincinnati	Clifford Schulte	Room 804, Union Trust Bldg.
Columbus		305 Spahr Bldg., 50 E. Broad St.
Dayton		1021 Third Nat'l Bk. Bldg., 32 N. Main
Toledo	H. A. Jordan (Acting)	519 Spitzer Bldg.
Youngstown		1002 Union National Bank Bldg.
Oklahoma		
*Oklahoma City	Morton R. Harrison (State Director)	Federal Reserve Bank Bldg. 226 West Third St.
Oregon		
*Portland	S. A. MacEachron	815 Bedell Bldg.
Pennsylvania		
*Philadelphia	Orville H. Bullitt (State Director)	Federal Reserve Bank Bldg. 925 Chestnut St.
Chester	Abbott Smith	12-14 East 5th St.
Lancaster	A. K. Barnes (Acting)	655 Woolworth Bldg.
Norristown	G. Peterson, Jr. (Act.)	306-308 Norristown-Penn Tr. Bldg. Main & Swede Sts.
Pittsburgh	M. F. McOmber	Fed. Reserve Bk. Bldg., Grant & Ogle
Scranton	Alfred T. Snyder	Room 717 First National Bank Bldg.
Wilkes-Barre	W. H. Pierce	528 Miners National Bank Bldg.
Rhode Island		
*Providence	W. Mason (State Dir.)	Industrial Trust Bldg., Westminster St.
South Carolina		
No Office		
South Dakota		
No Office		
Tennessee		
*Memphis	A. M. Field (State D.)	2112 Sterick Bldg.
Chattanooga	Paul E. Shacklett	909-910 James Bldg.
Knoxville	W. W. Mynatt (Act.)	202-204 Goode Bldg.
Nashville	W. G. Whitsitt	1014 Stahlman Bldg.
Texas		
*Dallas	A. J. Langford	Fed. Reserve Bk. Bldg., Wood & Akard
El Paso	L. A. Wilke	Fed. Reserve Bk. Bldg., 351 Myrtle Ave.
Houston	I. M. Griffin	Fed. Reserve Bk. Bldg., Texas & Caroline
San Antonio	P. E. Locke	1100 South Texas Bank Bldg. Houston & Navarro Sts.
Utah		
*Salt Lake City	J. M. Leisner	Federal Reserve Bank Bldg. Cor S. Temple & E. State Sts.
Vermont		
No Office		
Virginia		
*Richmond	Julian Lorin Mason	Johnson Publishing Bldg., Fifth & Cary
Washington		
*Seattle	F. C. Bold	National Bank of Commerce Bldg.
Spokane	T. Wilber Weger	Room 629-630 Old National Bank Bldg.
West Virginia		
Wheeling	(Will not be the main office)	1025 Main St., Hawley Bldg.
Wisconsin		
*Milwaukee	C. E. Ives (State Dir.)	1124 First Wisconsin National Bk. Bldg.
Wyoming		
No Office		

*Indicates Main Office in State.

Henderson 'Doubts' Complete 'Stop' on Appliance Making

(Concluded from Page 1, Column 2)

sibility now that the country has been brought into the war," Mr. Henderson was quoted as saying. "We must first see that the use of materials essential to defense is curtailed as much as possible in civilian goods and at the same time we must do all we can to expand production of products essential to maintaining civilian living standards on the highest possible level.

"To meet the latter responsibility we are doing everything possible to see that suitable materials in which there are no shortages are substituted wherever possible in consumer goods. Where that isn't feasible, we are trying to assure supplies of the minimum amounts of critical goods necessary to maintain production."

Bogardus Discusses Pricing, Excise Tax

(Concluded from Page 1, Column 1)

any forceful methods if we can possibly avoid doing so."

The government has endeavored to stabilize prices of raw materials and manufacturers' prices, he declared, and is now preparing to go about stabilizing prices in the distributing field.

"We want to have to do as little rationing as possible," he said.

Asked for an expression of OPA's attitude on the manner in which retailers should handle the manufacturer's excise tax, Dr. Bogardus replied:

"We have asked retailers not to take a markup on the manufacturer's excise tax—but we have had about 90% non-compliance. It may be necessary for us to require that the tax be listed as a separate item by the manufacturers, and perhaps on the price ticket. I know that many dealers object to this because it may reveal to the customer what the cost of the item is. However, I doubt that many consumers are aware of the fact that the exact amount of the tax is 10%.

"There is some objection to this request, too, because it has a tendency to curb the markup percentage on the retail price when there is no markup on the tax. But retailers will have to come to consider the fact that we are not going to consider the percentage basis in the matter of markup. Rather, we are going to consider it from the dollar basis.

"For example, if the manufacturer's price to you goes up 10%, we expect you to mark that up on a dollar basis, and not on a percentage basis. Under the system used in England, retailers were guaranteed the same per cent of profit as before, with the result that, in effect, it put a premium on buying at high prices. Consequently, retail prices there went up. We haven't gotten very fully into the retail field as yet, but our feeling is definitely against a percentage basis for figuring markups."

However, if a retailer's volume is so reduced that he needs a higher markup—not on the basis of paying costs for merchandise, but on the basis of higher costs of doing business—a way will be found for assuring him some relief, he said.

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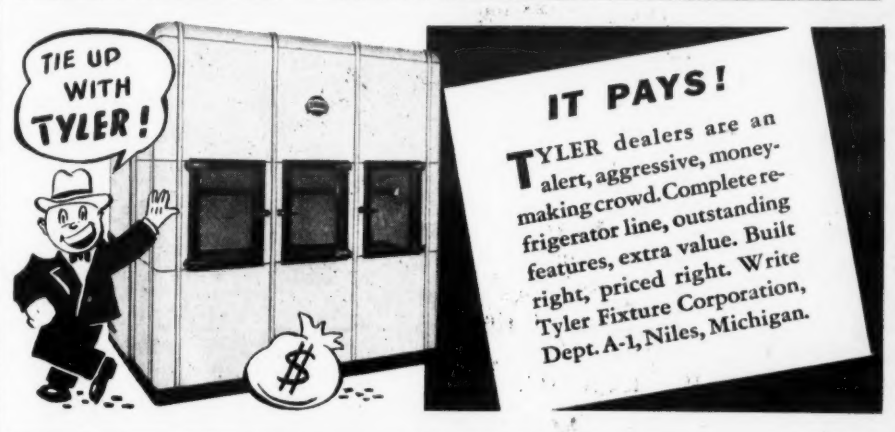

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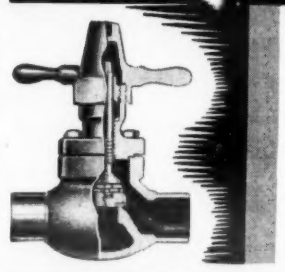
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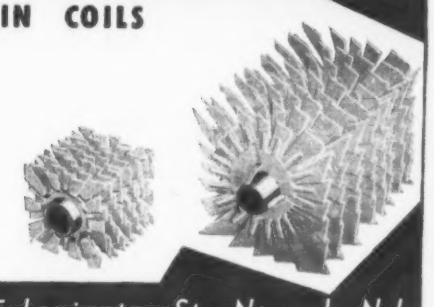
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Heating & Ventilating Show Is Canceled; ASHVE To Meet

(Concluded from Page 1, Column 5)
Air Streams" by G. L. Tuve, G. B. Priester, and D. K. Wright, Jr.; "Determining Sound Attenuation in Air Conditioning Systems" by D. A. Wilbur and R. F. Simons; and "The Performance of Stack Heads Equipped with Grilles" by D. W. Nelson, D. H. Lamp, and G. E. Smedberg.

At the 9:30 a.m. session on Jan. 28, "The Vapor Pressure of Ice from 32 to —28° F." will be discussed by John A. Goff, while "Physiological Fatigue from Exposure to Hot Environments" will be outlined by Dr. M. D. Ferderber, F. C. Houghten, and W. L. Fleisher, "Physiological Influence of Atmospheric Humidity" by C.-E. A. Winslow as chairman of the technical advisory committee on physiological reactions, and "Sanitary Ventilation" by W. F. Wells.

Opening session at 2 p.m. Jan. 26 will include a report by B. F. Raber and F. W. Hutchinson on "Panel Heating and Cooling Studies," and another on "Heat Gain Through Walls and Roof as Affected by Solar Radiation" by F. C. Houghten, E. C. Hach, S. I. Taimuty, and Carl Guthberlet. At a joint session with National Warm Air Heating & Air Conditioning Association at 2 p.m. on Jan. 28, Mr. Houghten, Mr. Taimuty, Mr. Guthberlet, and C. J. Brown will report on "Heat Loss Through Basement Walls and Floors."

Advance registration, A.S.H.V.E. council meeting, and final meeting of the 1941 committee on research will be held on Sunday, Jan. 25, before regular technical sessions begin. Annual A.S.H.V.E. business meeting will be held on the morning of Jan. 26.

Stanley High will be principal speaker at the annual banquet, to be held at 7 p.m. Jan. 28 in the Bellevue-Stratford ballroom, his topic being "What Are We Fighting For and Against?" Presentation of the F. Paul Anderson Medal will be made to Dr. F. E. Giesecke.

Nov. Household Sales Set Monthly Mark

(Concluded from Page 1, Column 4)
ed 93,974 units during the month, for an 11-month Nema total of 3,384,542 units.

November household refrigerator shipments, although the highest mark for that month ever recorded, were well below those for October, which totaled 145,000 units. Previous high November total, 97,000 units, was established in 1937.

Although 6-foot cabinets continued to lead in volume, most notable in the Nema tabulation is the strength shown by 7-foot cabinets, which were near their past month's marks despite the general falling off in sales for the period. Shipments of 7-foot units amounted to 30,298 units, as compared with 41,707 for 6-foot models, and but 5,309 for 9-foot cabinets.

Hoesel To Head Peerless Arms Engineering

CHICAGO—A. F. Hoesel has returned to Peerless of America, Inc. as chief engineer of the company's defense activities. His headquarters will be at the Peerless Chicago office, now permanently located at 333 North Michigan Ave., and he will continue as president of Flow Controls, Inc., which he organized in June, 1940, after resigning as Peerless chief engineer.

All Peerless of America manufacturing activities are now permanently located at Marion, Ind., reports M. W. Knight, assistant to the president, where 20 acres of factory space is available.

Prior to forming his own company here in June, 1940, Mr. Hoesel had been a member of the Peerless engineering organization for 21 years. He joined the company in 1919, and had an important part in the development of many of the refrigeration and air conditioning products which Peerless has had on the market since that time. In his new post, he is concerned with the company's defense activities only, and will handle these duties in addition to his responsibilities as head of Flow Controls, Inc.

Complete Records Must Be Kept on Instalment Sales

(Concluded from Page 1, Column 3)
statistical information on credit transactions to the Federal Reserve Board. However," he added, "this will be done on a purely voluntary basis."

Of interest to dealers was Mr. Hodge's analysis of the "Statement of Necessity" in Regulation W and the manner in which it may be used by consumer or merchant.

"The Statement of Necessity," he explained, "provides for the account already on the books who needs better terms as a result of a financial setback, which may be due to any one of a number of causes."

He emphasized that Regulation W was flexible—that changes of interpretation were possible—that the local Federal Reserve Banks and the Federal Reserve Board were eager to meet with representativs of industry to discuss problems peculiar to a particular sector of industry or a particular set of merchants. He urged that dealers take advantage of cooperative advances made by their local Federal Reserve Banks.

Regulation W, Mr. Hodges pointed out, was issued first as an effort to cushion the adverse economic efforts which might hurt the nation's total economy at the conclusion of the defense effort. A secondary purpose, he said, was to curb inflationary tendencies and function as an aid to the sale of defense bonds.

He added as a personal observation, that it may become necessary to add further commodities to the list already affected by Regulation W, as the defense program deepens its roots in the national economy.

There will be no changes, Mr. Hodge explained, in the usual methods employed by merchants in repossessing merchandise for accounts which have defaulted, and he reaffirmed the provisions of the regulation dealing with credit problems involving men selected for the armed services.

Freedlander Named To OPM Rubber Division

DAYTON, Ohio—A. L. Freedlander, president and general manager of the Dayton Rubber Mfg. Co., has been appointed deputy to the chief of the rubber and rubber products division of the OPM.

Mr. Freedlander has been in the rubber industry for 28 years. Leaving the development division of one of the large Akron companies 22 years ago, he joined Dayton Rubber in the capacity of factory manager. Several years later he was made vice president, and became president and general manager in 1936.

Herman Goldberg's Christmas party at the Stevens hotel in Chicago was an industry get-together that brought people from far and near. (Left) H. T. McDermott, national R.S.E.S. secretary (second from left) took occasion to discuss the society's plans with (left to right) A. Don McGill of Peoria; C. Buschkopf, Beaver Dam, Wis.; J. J. Kline, Springfield, Ill.; and G. W. Dresback, Normal, Ill. (Right) Al Fine, Kerotest Mfg. Co.; F. R. Pond, Refrigeration & Industrial Supply Co., Minneapolis; an unidentified lady; and Mrs. Fine.

Jesse Jones Appeals To All Banks To Help Small Firms Finance Arms Manufacture

WASHINGTON, D. C.—In a letter to every bank in the country, Jesse Jones, Federal loan administrator, has asked that banks aid the Reconstruction Finance Corp. and small business by making all possible loans to little firms to help them complete war contracts.

Although the RFC will assist banks in making the loans, Mr. Jones said it was preferable for banks to make and service the loans rather than for the RFC to do it. The RFC had been asked by the Office of Production Management to finance small manufacturers so that they would be in a position to assume war contracts, Mr. Jones told the banks.

Bankers, as represented by Henry W. Koeneke, president of the American Bankers' Association, favor Mr. Jones' plan. "On behalf of its members, the American Bankers' Association has consistently recommended that banks grant every loan application that they possibly can; and that they participate with other banks or with the RFC where applications are for amounts larger than they can legally lend, and that everything possible be done to make doubtful loan applications bankable, said Mr. Koeneke.

Timmis Heads Plumbing Heating Branch of OPM

WASHINGTON, D. C.—W. Walter Timmis, formerly assistant chief of the plumbing and heating branch of OPM, has been named head of the department, succeeding Leighton H. Peebles, who is now in charge of the new communications branch of OPM.

Prior to joining OPM, Mr. Timmis was president of Au-Temp-Co. Corp. of New York, manufacturer of temperature and industrial controls, and also vice president of Herske & Timmis, Inc., engineering and distributing firm. He formerly managed the air conditioning systems and controls division of American Radiator & Standard Sanitary Corp.

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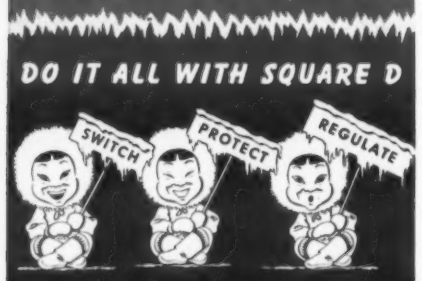

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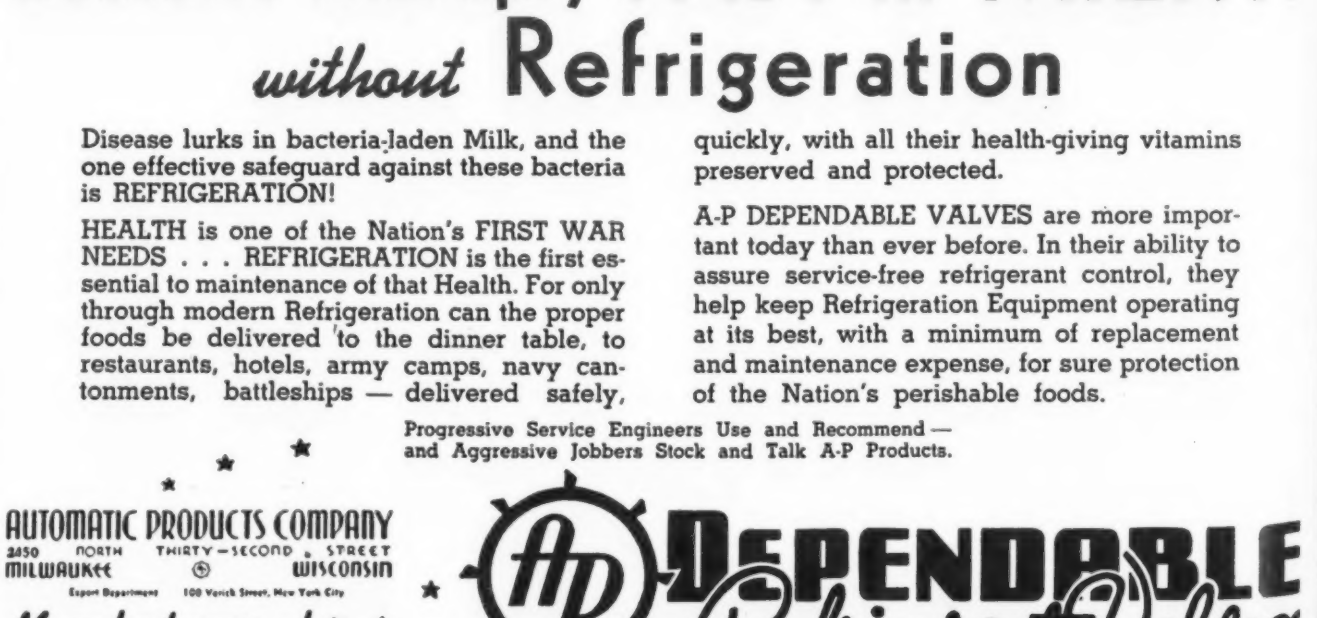

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